TAMPEREEN TEKNILLINEN YLIOPISTO
TAMPERE UNIVERSITY OF TECHNOLOGY

Sari Mäenpää

Managing Network Relations in the Project Business Context – Social Capital Perspective

Julkaisu 1165 • Publication 1165

Tampere 2013

Tampereen teknillinen yliopisto. Julkaisu 1165
Tampere University of Technology. Publication 1165

Sari Mäenpää

Managing Network Relations in the Project Business Context – Social Capital Perspective

Thesis for the degree of Doctor of Science in Technology to be presented with due permission for public examination and criticism in Classroom 241, at Tampere University of Technology, Pori, on the 25th of October 2013, at 12 noon.

Tampereen teknillinen yliopisto - Tampere University of Technology
Tampere 2013

ISBN 978-952-15-3168-2 (printed)
ISBN 978-952-15-3179-8 (PDF)
ISSN 1459-2045

”Välttämätön ensimmäinen siirto sille, että saat elämältä sen minkä haluat on tässä: päätä, mitä haluat.”

-Ben Stein-

ABSTRACT

No company can survive alone and instead of single companies competing, it is in fact networks of companies that compete with each other. Competitiveness can be enhanced, for example by lowering costs and ensuring the availability of essential network resources. Being part of a network requires collaboration and the capability to utilize business relations and resources. So far, studies on collaboration and managing relations have concentrated on long-term, continuous relations, with the focus on information and communication technology. The relational aspects of collaboration in the project context have not been thoroughly studied even though the competitiveness of a business network has been found to depend on its members' ability to manage business relations.

The competitiveness of a project network and the role of relational competence within it are the focus of this study. This dissertation intends to increase the understanding of social capital enabled collaboration as a basis of network competitiveness in the project business context. To achieve this objective, the following three research questions are investigated: 1) how can relational competence be analyzed? 2) what is the importance of relationships? and 3) how can the business impacts of collaborative relationships be analyzed? The study includes both conceptual analysis and an empirical study based on interviews. The basic argument underlying this study is that the relational competence of network companies should be emphasized more when evaluating network competitiveness. The study complements the research by bringing social exchange theory to bear on supply chain integration analysis in the project context.

The objective of this study is to develop a classification typology based on relational aspects of collaboration to help in analyzing the competitiveness and operational ability of a project network. Three research questions are addressed in pursuit of the objective of the study, the aim being to clarify the sources of relational competence, the significance of network relations, and the business impacts of relationships.

In order to capture the essence of a classifying typology on the relational competence of network companies, a combination of grounded theory and case study approaches was used in the dynamic field of project business. Two shipyards and eight subcontractors in the Finnish maritime industry were chosen as the case companies.

The study provides both theoretical contributions and managerial implications. The main contribution of the study is that it clarifies the role of social capital on collaboration between project-based network companies. The study contributes to the evolving idea of utilizing social exchange theory as a complementary theory for theories of transaction cost economics and the resource based view in supply chain integration analysis. Social exchange theory adds to these above-mentioned "traditional" supply chain management theories by widening the view from mere contracts, cost focus, and availability of resources towards relational competence, the ability to exploit resources

and relations. The study extends the discussion on the relational aspects of collaboration, highlighting the context of a project business network. The study provides empirical evidence of building collaboration on relational aspects in the project business context also, offering a new perspective. The study also brings about a novel typology of project business relations based on relational aspects of collaboration. Based on this classification, four categories were identified to describe project network companies on the basis of their relational competence: 1) indifferent, 2) benefitting, 3) diversifying, and 4) committed partners.

In the case study, the network relations were found to be significant, even indispensable from the shipyard viewpoint. At the same time, shipyards are seeking to simplify the network structure by focusing on ever fewer turnkey suppliers, leading to consortiums or cooperative societies formed by subcontractors. For subcontractors, both the presence and the closeness of the customer as well as developing the business in collaboration are important. Avoiding a situation where subcontractors are "left alone" is one of the challenges of the future.

The empirical observations of this study indicate that all the aspects of social capital, not just mechanical information sharing, should be considered when evaluating the relational competence of a company. It was also found that companies with a higher level of relational competence experience higher business impacts and higher satisfaction with collaboration. The lesson for managers is that companies with good relational competence benefit more from collaboration. Improving relational competence by investing in the development of all social capital elements enables enhanced benefits from collaboration; a company will gain more from acting as a subcontractor for the shipyard.

TIIVISTELMÄ

Mikään yritys ei selviä yksin ja kilpailu keskittyykin yksittäisten yritysten sijaan yritysten muodostamien verkostojen välille. Kilpailuetua saadaan kustannuksia alentamalla ja varmistamalla keskeisten verkostoresurssien saatavuus. Verkostossa toimiminen edellyttää yrityksiltä yhteistyötä sekä kykyä hyödyntää verkostosuhteita ja -resursseja. Yhteistyön ja suhdehallinnan tutkimus on keskittynyt pitkäaikaisiin, jatkuviin suhteisiin ja tietotekniikan hyödyntämiseen suhteen mahdollistajana. Projektiympäristössä esiintyvän yhteistyön suhdetekijöitä ei ole tarkasteltu vaikka verkoston kilpailukyvyn onkin todettu riippuvan sen jäsenten kyvystä hallita liiketoimintasuhteita.

Tässä tutkimuksessa tarkastellaan projektiverkoston kilpailukykyä ja suhdeosaamisen roolia siinä. Tämän työn tavoitteena on lisätä ymmärrystä projektiympäristön yhteistyöhön liittyvästä sosiaalisesta pääomasta kilpailuedun perustana. Tavoitteen saavuttamiseksi tutkimusta ohjaavat seuraavat kolme tutkimuskysymystä: 1) miten suhdeosaamista voidaan arvioida, 2) mikä on yhteistyösuhteiden merkitys projektiverkoston toimijoille ja 3) miten yhteistyösuhteiden liiketoimintavaikutuksia voidaan arvioida. Tutkimukseen sisältyy sekä käsiteanalyyttinen että empiirinen, haastatteluihin pohjautuva osuus. Tutkimus perustuu väitteeseen, että verkostoyritysten suhdeosaamista pitäisi korostaa nykyistä enemmän arvioitaessa verkoston kilpailukykyä. Työ täydentää tutkimusta tarkastelemalla projektiympäristössä tapahtuvaa toimitusketjuintegraatiota sosiaalisen vaihdon teorian näkökulmasta.

Työssä kehitetään yhteistyön suhdetekijöihin perustuva luokittelu, jonka avulla projektiverkoston kilpailu- ja toimintakykyä voidaan paremmin arvioida. Tutkimuskysymysten pohjalta pyritään selvittämään suhdeosaamisen lähteet, verkostosuhteiden merkitys ja suhteiden liiketoimintavaikutukset. Luokittelumallin luomiseksi työssä hyödynnetään sekä grounded theory- että case-tutkimusta. Kaksi telakkaa ja niiden kahdeksan alihankkijaa suomalaisesta meriteollisuudesta valittiin tutkimuksen case-yrityksiksi.

Tutkimuslöydökset ovat sekä teoreettisia että käytännöllisiä. Tutkimus selkeyttää sosiaalisen pääoman roolia projektiverkoston yritysten yhteistyössä. Tutkimus tukee ajatusta soveltaa sosiaalisen vaihdon teoriaa transaktiokustannusteorian ja resurssiperusteisen ajattelun rinnalla analysoitaessa toimitusketjujen integraatiota ja verkoston kilpailukykyä. Sosiaalisen vaihdon teoria korostaa yhteistyön tarkastelemista suhdeosaamisen sekä resurssien ja suhteiden hyödyntämiskyvyn näkökulmasta, ei pelkästään sopimusten, kustannusten tai resurssien saatavuuden näkökulmasta. Tutkimus laajentaa keskustelua kohti yhteistyön suhdenäkökulmaa myös projektiverkostoissa. Lisäksi työssä esitetään uudenlainen yhteistyösuhteiden luokittelu perustuen suhdeosaamisen ja suhteiden liiketoimintavaikutuksen tasoon. Jaottelun pohjalta tunnistettiin neljä kategoriaa projektiverkoston yritysten kuvaamiseksi

suhdeosaamisen perusteella: 1) välinpitämättömät, 2) hyötyvät, 3) hajauttavat ja 4) sitoutuneet kumppanit.

Tutkimuksen empiiristen havaintojen perusteella kaikki sosiaalisen pääoman elementit pitäisi ottaa huomioon arvioitaessa yrityksen suhdeosaamista, ei pelkästään mekaanista tiedonjakoa. Huomattiin, että ne yritykset joiden suhdeosaaminen on paremmalla tasolla kokevat myös hyötyvänsä enemmän yhteistyöstä. Suhdeosaamisen kehittäminen ja panostaminen kaikkiin sosiaalisen pääoman elementteihin lisää yhteistyöstä saatavia hyötyjä; yritys saa enemmän irti toimimisestaan alihankkijana telakalle.

ACKNOWLEDGEMENTS

Finally this work is done! During the years in academia I have had many beginnings with doctoral thesis, first in the turn of this millennium concluding into the degree of Licentiate of Technology in 2003. Then, in the beginning of 2009 I started once again – and this time I reached the goal, thanks to my trustworthy and committed supervisor Professor Rainer Breite. Right from the beginning Rainer showed an interest in the same research area, respected my work, had always faith in me (or so I presume) and was constantly ready for discussions and guidance. The change in Rainer's workplace somewhat slowed down the research process but eventually we are here and now.

I want to thank Professor Kari Tanskanen (Aalto University) and Professor Jukka Hallikas (Lappeenranta University of Technology) for examining my dissertation. I appreciate that they found time to get acquainted with my manuscript and to give their valuable comments for it.

I want to thank the companies that participated in ALKU research project and opened their doors for me for data collection. To maintain the anonymity of the companies I do not name the persons. Without your participation this thesis would not exist. Thank you! My involvement in the project was enabled by Adjunct Professor Heli Aramo-Immonen, the Responsible Director of the ALKU project. Project Manager Matti Luhtanen for his part took well care of the appointments and scheduling during the interview phase.

In addition of enabling this research to become real, I wish to thank both Rainer and Heli for their pleasant company in several conference journeys: we have had unforgettable moments in Alexandria, enjoyed warm days in Maastricht as well as mild atmosphere in springlike Cardiff.

I thank the organizations that have funded my work during the past years: Suomen Kulttuurirahasto (The Finnish Cultural Foundation), Liikesivistysrahasto (The Foundation for Economic Education), Jenny and Antti Wihuri Foundation and Tekniikan edistämissäätiö. I also wish to thank Sue Pearson and Mike Jones from the Pelc Southbank Languages for the proofreading of the English language of the dissertation. Also thanks to Docent Emeritus Kaj Koskinen for his encouraging comments as the first outsider to read the manuscript.

I wish to thank my family for being so understanding in regard to my endless study time. Perhaps now it is time to move forward at last. I also wish to thank my husband Janne for his practical visions and financial support. Your, occasionally quite sharp comments were both irritating and also very necessary for me to get on. Thank you for being there through thick and thin!

During the past year I have had the opportunity to write this thesis at home. This has been such an exquisite time: to be able to be there for my two magnificent sons - and their friends as well. My writing has also attracted the nine-year-old's interest as he repeatedly insisted to know, against whom am I arguing. The six-year-old participated in checking the references list thus constantly suggesting: "Mom, let's do the dissertation again!" Without you, Antti and Lauri, also this thesis would not have any meaning. I love you both so much!

In Ylöjärvi, August 19th, 2013

Sari Mäenpää

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1 INTRODUCTION

The first chapter of the dissertation discusses the background and motivation for the research. This chapter presents the research problem and the research questions the dissertation aims to answer. The areas of contribution of the study are discussed and the Finnish maritime industry as an empirical research context is introduced. The structure of the dissertation is presented at the end of the chapter.

1.1. Motivation for the research

1.1.1. Competitiveness requires collaboration

No company can survive alone. Organizations recognize that it is not the best single organization but the best supply chains that will win the competition (Handfield and Bechtel, 2004). The fundamental rationale behind collaboration and in engaging in business relations is to create value and to strengthen competitiveness by working together (Walter et al., 2001; Min et al., 2005). Rather than competing "firm versus firm", organizations today are battling "supply chain versus supply chain" or "supply network versus supply network", i.e. competition is considered to take place between business networks, not between individual companies (Blankenburg Holm et al., 1996). Companies engage in collaboration to develop, maintain, and enhance supply chain capabilities that contribute to enhancing company performance and ultimately, competitiveness (Hardy et al., 2003). Companies need strategic resources that lie beyond their boundaries to gain competitiveness - and to obtain these resources and reduce transaction costs, companies need to cooperate (Das and Teng, 2000). Collaboration between supply chain partners is a vital means for securing competitiveness in a dynamic environment (Bleeke et al., 1993). The establishment and maintenance of such a collaborative relationship is a management process identified as supply chain integration (Yeung et al., 2009).

Integration of supply chain activities requires dyadic involvement, i.e. consistent involvement of both the buyer and the supplier, and investing in socialization (i.e. interaction and communication), which is critical to integration success (Cousins et al., 2006). Barrat (2004) talks about collaborative culture - cultural elements being trust, mutuality, information exchange, openness, and communication - all of which are critical elements of collaboration. Benefits are expected to emerge when partners are willing to work together, understand each other's viewpoints, share information and resources, and achieve collective goals. These antecedents of collaboration - trust,

common objectives and communication - are also known as the focal elements of social capital (Nahapiet and Ghosal, 1998).

Many authors agree that integrative practices and a high level of integration have positive impacts on corporate and supply chain performance (Cousins et al., 2006; Kim, 2006; Zailani and Rajagopal, 2005; Simatupang and Sridharan, 2005). The requirement for the integration of supply chains is inherently strategic, and a potential source of competitiveness (Power, 2005). Thereby, the rationale behind supply chain collaboration (i.e. integration) is to combine supply chain partners' resources and perspectives into the company's value propositions, thus allowing all companies in a supply chain or network to excel in performance (Yeung et al., 2009).

Collaboration enables benefits related to time, costs, and quality. The nature and the outcome of companies' actions are affected by business relationships and relationships are also a potential source of efficiency and effectiveness for both partners in a relationship (Gadde et al., 2003). Good and functioning business relations can provide better products and services more cost effectively and with shorter delivery times. Earlier research (Frohlich and Westbrook, 2001; Vickery et al., 2003; Zailani and Rajagopal, 2005) has provided convincing empirical evidence for the relationship between integration and performance. Also, Pagell and Wu (2006) consider supply chain integration as a process of interaction and collaboration in which companies work together in a cooperative manner to arrive at mutually acceptable outcomes. Integration has been found to offer benefits such as reduced cost, superior customer service levels, and improved responsiveness to changes in the marketplace (Jahre and Fabbe-Costes, 2005; Power, 2005; Pagell, 2004; Stock et al., 2000; Tan et al., 1999). In addition to these, Dietrich et al. (2010) conclude three main types of outcomes related to the collaboration of partners within projects: project success, potential for learning and innovation, and commitment for future collaborations.

Supply chain integration is especially problematic in a dynamic business environment such as one-off projects, because supply chains there are usually associated with large, complex projects varying in frequency, scope, and scale. Typically, this kind of project-based environment can be characterized by varying demand, changing partners, altering supply chains, varying roles, as well as environmental fragmentation. If the integrating participants do not have a common direction and shared set of goals then each participant could potentially end up with strategies that are in conflict with those of other participants of the network (Barber, 2008).

Over the last decades, interest in collaborative relationships has surged. For example, Hoyt and Huq (2000) argue that closer buyer-supplier relationships have evolved over the past two decades from transaction processes based on arm's length agreements to collaborative processes based on trust and information sharing. They also state that

collaborative buyer-supplier relationships play an important role in an organization's ability to respond to dynamic and unpredictable change. Thus, the role of supply chain integration, i.e. the process of establishing and maintaining collaborative relationships, is important also in a dynamic project environment. As Van Donk and van der Vaart (2005) among others point out, a high level of environmental uncertainty is a focal driving force aiming at more integrative practices. In other words, the level of integration needed depends largely on the amount of uncertainty and dynamics within the supply chain or network and in order to manage and diminish supply chain dynamics or the effects of it, a more thoroughly managed integration process is needed. (cf. Stonebraker and Liao, 2004)

Competitiveness can be created in different ways, e.g. by focusing on lower costs in search for increased business impacts and by ensuring the availability of resources enabled by network collaboration. Networks are seen as a critical unit of analysis for explaining company performance (Dyer and Hatch, 2006); however, the sources of competitiveness gained in networks are unstudied (McEvily and Marcus, 2005). Here, the relational aspects of collaboration are emphasized as the competitiveness of a business network is found to depend on its members´ capability to manage relations, i.e. to utilize relations and relational skills (cf. Mesquita et al., 2008; Bleeke et al., 1993).

As networking i.e. the management and exploitation of external resources has increased and become a new source of business success, it has also given rise to various new risks (Hallikas et al., 2005). The risks araising in network management, for example increasing requirements of communication and cooperation activities add claims for e.g. information systems, openness, trust and production systems (Hallikas and Virolainen, 2004). The risks related to collaborative relationships are important but not in the exact core of this study. Relationship-related risks have not been empirically studied here even though one obvious risk would possibly be the increased dependency between companies leading to increased exposition to the risks of other companies (Hallikas et al., 2004).

1.1.2 Research gap

A great deal of time, effort and resources are expended on the formation of a collaborative relationship, but checking on the ongoing viability and vitality of the relationship is insufficient (Daugherty, 2011). Business is not static and therefore assuming that relationships are is unrealistic. Kanter (1989) argues that a successful partnership requires the management of the relationship, not just a focus on the business deal. To improve the management of business relations, relationships can be categorized based on specific characteristics. This is typical especially in the field of supply chain

management where, for example, suppliers and procurement relations have been classified based on the purchased product's business impact (value or cost) and supply risk (cf. Kraljic, 1983).

Business relations have not, however, been estimated on the relational level based on social capital elements. Also, categorizations based merely on costs or risks or on a single element of social capital are not sufficient to help manage relations and relational skills. The individual success factors of relationships have been studied and can be summarized as 1) customers focusing on value creation instead of cost minimization (Beach et al.; 2005); 2) trust, good communication, commitment, clear understanding of roles, consistency and flexible attitude (Black et al., 2000); and 3) collaborative team culture, long-term quality focus, consistent objectives and resource-sharing (Chen and Chen, 2007). Also, buyer-supplier relations and supply chain alliances have been studied from the social exchange theory perspective (Narasimhan et al., 2009; Zhang et al., 2009; Griffith et al., 2006; Kingshott, 2006) but the role of relational skills in exploiting the available resources and relations to gain benefits has not been the focus of research – especially not in the project context.

The focus in earlier research has been on viewing the elements of successful partnering in the manufacturing industry. Information and Communication Technology (ICT) is seen as a focal enabler of collaboration (cf. Vickery et al., 2003; Sanders, 2005; Paulraj and Chen, 2007) and manufacturing industries, such as automotive industry, as the most natural ground for collaboration (cf. Dietrich et al., 2010; Mills et al., 2004; Stank et al., 2001). Studies on the success factors of relationships (Beach et al., 2005; Black et al., 2000; Chen and Chen, 2007) have resulted in a set of success factors such as trust, communication, and consistent objectives. Furthermore, elements affecting trust and cooperation in the client-contractor relationship (Kadefors, 2004) as well as means to improve trust (Wong and Cheung, 2004) have been considered.

Earlier research has also focused on the cyclical relationship between the strength of the buyer-supplier relationship and performance (Autry and Golicic, 2010); the impact of a common past and expected common future on the probability of future problems and conflicts (Kamann et al., 2006); the impact of partnership on the construction process and the effect of these contracts on small construction companies (Packham et al., 2003); the impact of personal contacts and company size on integration (Welling and Kamann, 2001) and the way buyers integrate suppliers into the project organization, and how different buyer-supplier relations affect supplier integration (Martinsuo and Ahola, 2010).

To conclude the above, studies on collaboration and managing relations have concentrated mainly on long-term, continuous relationships in automotive and other similar industries with ICT as a focal enabler of collaboration. As Bankvall et al. (2010)

state, it is problematic to apply Supply Chain Management (SCM) models developed for other industrial contexts, such as the automotive industry, in the project context, such as the construction industry. This is because these models emphasize integration of activities that are subject mainly to sequential interdependencies while the pattern of interdependence is very different in the project context. Relational aspects of collaboration in the project context have not been thoroughly studied and several researchers (Vijayasarathy, 2010; Giunipero et al., 2008; Barrat, 2004) have also called for more research on relational aspects of collaboration in general and in the project context (Narasimhan et al., 2009; Zhang et al., 2009; Griffith et al., 2006, Kingshott, 2006) specifically. The literature review reveals that the combination of relational aspects and supply chain integration (collaboration) in the project context offers a new empirical context in which to conduct research. This is an important issue, as success in managing relations is argued to be crucial while it relates to the competitiveness of a network. In other words, a gap in the research was found where the key concepts of relational elements, i.e. elements of social capital; collaboration, i.e. the process of managing network relations; and the project context intersect. Furthermore, as value is created also through non-economic actions, emphasizing the value-creation view in addition to the cost reduction approach widens the research gap. To succeed in a relationship, it is essential to manage the relationship, including all its related elements of social capital, and not simply focus on the business deal and its related costs and risks.

1.2. Research problem formulation

1.2.1 Need for widening the theoretical framework

As mentioned above, competitiveness can be created in different ways, e.g. by focusing on lower costs and the availability of significant resources. However, the ability to achieve and maintain good relationships and to exploit the resources enabled by relationships can be seen as part of competitiveness as well.

The management of network relations is problematic, especially in project-based industries due to the discontinuity of demand for projects, the uniqueness of each project and the complexity of each project in terms of the number of actors involved. Doing things cost-effectively is not enough; focus on doing the right things is also needed. Furthermore, viewing the relationships from merely the Transaction Cost Economics (TCE) approach or Resource Based View (RBV) is not sufficient as the TCE view is primarily concerned with the management of transactions in an effective manner through the least cost form of governance (Williamson, 1985), while the RBV (Penrose, 1959) is primarily concerned with the management of resources in a manner which increases the competitiveness that can be obtained from a single company's

resources (Peteraf, 1993). Here the idea is to view relational skills, i.e. the competence of network companies to achieve and maintain good relations and to exploit the resources enabled by those relations as a source of competitiveness.

According to Jarillo (1988), two characteristics must be met for a network to come into existence and to survive: it must be both effective and efficient. The basic condition for effectiveness is technological (i.e. external costs must be lower than internal costs), plus the possibility of lowering transaction costs, i.e. costs for preparation and enforcement of a contract. The basic condition for efficiency is that the gain to be achieved by being part of the network is seen as superior, over the long term, to the profits that can be obtained by going alone or by establishing short-term, changing relationships. This can be achieved through the realization of two points: 1) belonging to the network gives superior performance ("more pie to share") and 2) the sharing mechanisms are fair.

As Jarillo (1988) concludes, a network is economically feasible because the specialization of each supplier makes the final total cost lower. The network can be sustained because long-term bonds, which generate trust, lower transaction costs. Value is created jointly in cooperation with other organizations and generally, value creation is directed by economic targets. However, value is also created through non-economic actions; actions that are based on relationships (Blau, 1986). Social Exchange Theory (SET) (Homans, 1958; Blau, 1964) provides a basis for understanding this kind of value creation better instead of focusing merely on the TCE and RBV approaches. Participants in social exchange are assumed to share common views and values, share knowledge, and enjoy increased mutual trust, thus reaching a higher level of relational skills in the form of decreased control, increased commitment, and less opportunistic behavior.

According to SET, the participants in social exchange create and exchange value with each other (Blau, 1986). Although buyer-supplier relationships and supply chain alliances have also been studied increasingly from the social exchange theory perspective (Narasimhan et al., 2009; Zhang et al., 2009; Griffith et al., 2006; Kingshott, 2006), the role of relational skills in exploiting the available resources and relations to gain benefits has not been the focus of research – especially not in the project context. As Nieminen (2011) argues, observing merely the costs and effectiveness of the supply chain is not enough. Instead, it is a question of managing both competitiveness and relational issues. As Granovetter (1985) puts it, although supply chain management is driven by economic actions, it is strongly embedded in social relations. Understanding the value potential of relational aspects can help in the successful management of supply chain and network relationships. Thus, an emphasis away from the TCE approach and RBV further towards the SET way of thinking is needed.

1.2.2 Research objectives and questions

This dissertation argues that the analysis of the relational skills of network companies should be emphasized more when evaluating the network's competitiveness and ability to function. Following this argument, the main interest is to gain additional understanding on the importance of relational competence, i.e. the ability of network companies to utilize the relations and resources available, to enhance relationship management, and to learn more about the operational ability of the network especially from the social capital viewpoint. Figure 1.1 presents the research problem formulation with one main problem and two sub-problems leading to the research objectives.

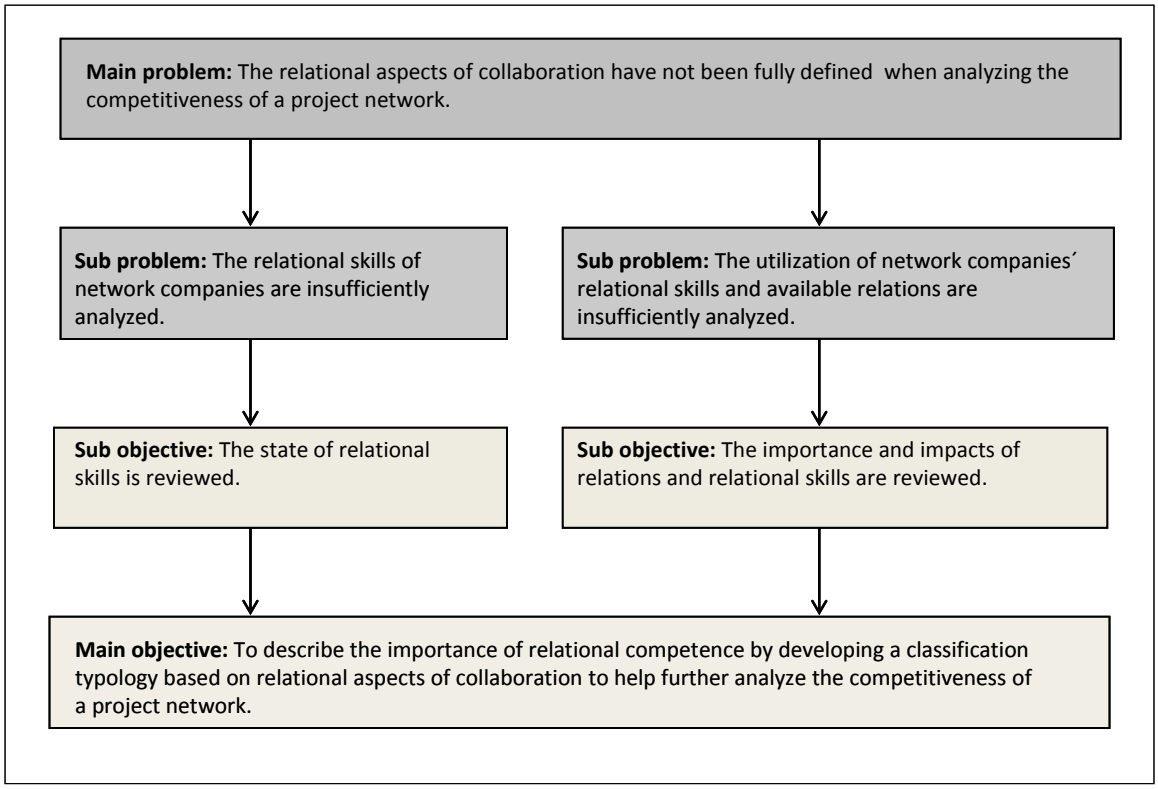

Figure 1.1 Research problem and objectives

The study focuses on answering the following Main Research Question (MRQ):

MRQ: How can the importance of relational competence be described?

This main research question is based on the argument that evaluating the competitiveness of a supply network calls for a more detailed analysis of the relational skills of network participants, as the competitiveness of a network depends on its companies´ ability to manage relationships. The answer to the main research question is generated by finding answers to the following more detailed research questions:

RQ1: How can relational competence be analyzed?

RQ2: What is the importance of relationships?

RQ3: How can the business impacts of collaborative relationships be analyzed?

Both theoretical and empirical research is needed to answer the research questions sufficiently. In answer to the main research question, a classification typology will be first developed based on the theoretical framework of the research. Then, empirical observations will be used in testing the developed typology.

To answer the research questions, the sources of relational skills in general are first clarified as the basis of typology development. Then, the existence of the relational aspects as well as the level of relational skills in an empirical project business context are explored as the basis of testing the model. Social capital is discussed in order to discover and classify the general sources of relational skills. Also, the mechanism of relational skills (i.e. how relational skills present themselves) is clarified by viewing the commitment of network participants towards collaboration, flexibility in actions, and opportunistic behavior. Then, the importance of relations is clarified and the business impacts of relationships are examined as the other dimension of the typology. Defining the sources of relational skills is important but it is also crucial to be aware of their effects. The existing literature suggests many kinds of sources of relational skills, which also define the outcomes of network companies (cf. Dyer and Singh, 1998). The successful management of network relations requires analysis of the impacts of relational skills on both economic and market outcomes.

As Dyer and Singh (1998) state, to understand competitiveness and to examine and explore value creation, the relationships between companies need to be considered as the unit of analysis. Dyadic relations are the building blocks of networks and are therefore essential to the existence of networks. This study also deals with the project business and in the project business the unit of analysis is a company rather than a project, meaning that the focus is on the company and its business whereas the projects may be secondary. (cf. Artto et al., 2006). Thus, in this research, the unit of analysis is a network company although the focus of the interviews is on dyadic network relations.

1.2.3 Research strategy

This study aims to add to the knowledge about the role of the relational aspects of collaboration in a project business context. However, before choosing the data collecting methods, certain questions concerning research philosophy, approaches and strategies need to be considered (cf. Saunders et al., 2009) (Figure 1.2).

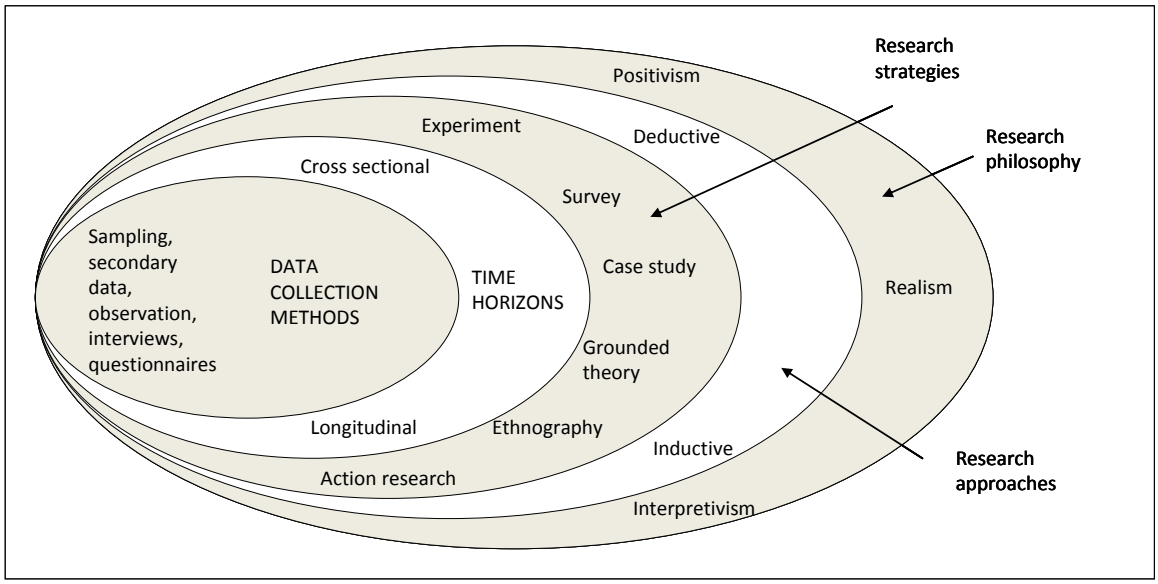

Figure 1.2 Research process "onion" (Saunders et al., 2003)

The worldview of the research is usually determined by two main philosophies: hermeneutics or positivism (Bernard, 1994). The basic idea in hermeneutics is to understand, interpret, and explain the studied phenomenon whereas in positivism the focal idea is to find "one objective truth" (cf. Bernard, 1994). Social sciences represent the category of hermeneutics whereas research in the area of natural sciences is positivistic by nature. Of these two research paradigms, this study is situated closer to hermeneutics as it aims to explore and describe the phenomenon of interest, i.e. relational aspects of collaboration in a project business context.

New knowledge can be generated using either theory or data as its starting point. Deduction means progressing "from theory to data" (cf. Saunders et al., 2009) or "from general to specific", that is, developing a theoretical framework to be tested using empirical data. Induction means progressing "from empirical research to theoretical findings" or "from specific to general". Although the deductive approach is often associated with quantitative research and inductive with qualitative research (cf. Saunders et al., 2009), they are not exclusive alternatives. Also, the division between the two approaches is not clear and regardless of the nature of the research, both approaches can be applied, even in different phases of the same study (Hammersley, 1992; Eriksson and Kovalainen, 2008). Here, the research starts with an exhaustive literature review resulting in a theoretical framework, thus offering a basis for testing the classification typology using empirical observations. Theory is also present in data collection and analysis phases. Thus, the study has features of deductive approach. On the other hand, the study is qualitative in nature and the empirical findings are reflected to existing literature therefore indicating inductive approach. The study is situated in the middle of

inductive and deductive approaches. The two approaches are not exclusive and the division between the approaches is not clear – which is the case in this study as well.

In order to explore and understand the phenomenon of interest, this study applies two research strategies (see Figure 1.2): grounded theory (cf. Glaser, 1992; Strauss and Corbin, 1990) and case study (cf. Yin, 2003). Even though grounded theory (GT) is generally used to generate an inductive theory about a substantive area (Glaser, 1992), it is also an advisable set of methods in a field where problems involve complex social interactions (cf. Kaufmann and Denk, 2011), as is the case in this study. In addition, GT can be used to ascertain the rigor of qualitative research (Giunipero et al., 2008), as is done here. As the results of the phenomenon under study can have a high impact due to real-life organizational settings, a case study is favored as well (Eisenhardt and Graebner, 2007). Also, in a changing environment, managerial methods and technology call for more field-based research (cf. Lewis et al., 2002) and as Seuring (2008) argues, enhancing understanding in the field of SCM calls for empirical research, in this research in the form of a case study. Case study research examines a theory in the light of practice, focusing on the question "what is to be learned from a single case" (Stake, 2005). Case study is also a suitable method when the research aims to answer how or why questions, when the researcher has little control over the events, and when the research focuses on a current phenomenon in a real-life context (Yin, 2003). Case study research does not interpret the studied phenomenon; instead it strives to describe it.

To summarize, the research paradigm of this study is closer to hermeneutics, features of both inductive and deductive approaches are detected, and both grounded theory and case study methods are used. The data collection methods in this study consist of literature review, semi-structured interviews and conversations, as well as secondary data.

1.2.4 Focus of the research

The study is limited to a single sector of management, that is, management of relationships and specifically, management of relational skills. In the area of relational skills, all the components of social capital are viewed in one study. The empirical focus is on network relations in a project context.

The objective of the thesis is to gain substantial understanding in a new context, i.e. to understand better the role of the relational aspects of collaboration in a project business environment and further, to enhance the management of network relations in a project context. The areas of contribution of the study in terms of substance, context, theory, and method are shown in Figure 1.3.

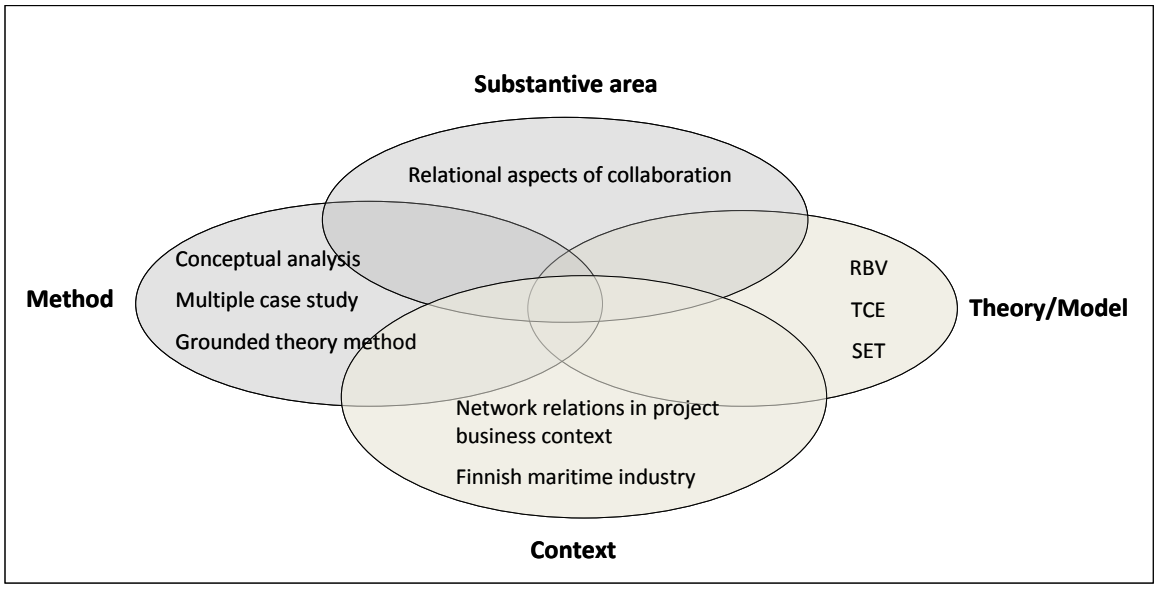

Figure 1.3 Areas of contribution of the study

This study's substantive area lies in the relational skills of project-based companies. The theoretical basis stems from resource based view (RBV) and transaction cost economics (TCE) completed by social exchange theory (SET). The context of studying relational skills is network relations in a project business environment. The method used is grounded theory (GT), including conceptual analysis of the existing literature and a multiple case study to gain additional understanding of the subject. The most important contributions are in the substantive area and context. So far, limited interest has been channeled towards the relational aspects of collaboration as well as relationship-based value creation in the project context. To fill this research gap, the relational skills and relationship outcomes of network companies in relation to the competitiveness of project-oriented networks are studied in this thesis.

The focus in this thesis is on the role and importance of network relations in managing project-oriented supply chains and networks, the achieving of relational skills in this context, and identifying the outcomes of collaborating and exploiting relational skills on project business companies. In this study, project business is understood as managed activities aiming to serve the objectives of a company. (cf. Artto et al., 2006) However, project management is not the issue in this research. The project context of this study stems from empirical discussion concerning companies operating in a project business environment.

The context of the empirical part of the study is the Finnish maritime industry, one of Finland's most international industries. As the shipyards admit their dependence upon trustworthy and skilled subcontractors and suppliers, the maritime industry intends to increase networking and to deepen partnerships. Collaboration enables specialization, and benefits are expected to arise from this kind of collaborative network as

specialization is a key to success in this branch of industry. Managing network relations is a focal theme in ensuring the realization of these benefits.

This dissertation discusses how network companies in a project context can be categorized from the viewpoint of social capital to improve the management of relations and to gain new knowledge on the competitiveness of networks. The novelty of this research is that each different aspect of social capital as a focal element of relational competence is examined in one study, and thus additional understanding about the relational aspects of collaboration in a project context is gained. The research adds to theory by linking the relational aspects of collaboration (SET approach) to relationship management and the competitiveness of network companies in a project business context. The findings may provide guidance to companies in how to effectively manage relations in a project business context.

1.3. The Finnish maritime industry as an empirical research context

The empirical part of this thesis addresses the research topic in the context of network relations in the Finnish maritime industry, in the form of a multiple case study involving interviews in ten case companies. The discussion in this section focuses on the Finnish maritime industry as an empirical research context for better understanding the value potential of relational skills of network companies in a project business environment.

Finland is the world's fourth biggest passenger ship producer and the Finnish offshore industry produces search and production equipment for submarine oil and gas fields globally. The Finnish maritime industry is comprised of shipyards and network companies, such as engineering offices, turnkey suppliers, system suppliers, equipment and material suppliers, as well as the offshore industry. The industry's turnover is approximately 5.7 billion Euros (2011). The Finnish maritime industry is part of the maritime cluster, which also includes shipping and port services. The cluster has about 43 500 employees in Finland and the maritime industry employs more than 21 000. (Finnish Maritime Society)

The maritime cluster is a functional whole formed by several different industries. The cluster companies and other actors work in solid cooperation with each other and benefit from the resulting network. The sea is the combining factor for all of the actors in the cluster. Also, networking is recognized as the focal characteristic of the cluster, being a kind of "network of competence". All the actors in the cluster are somehow connected with each other and inter-organizational collaboration is thus an essential part of networking. Collaboration and networking are the central themes of the cluster mindset as "a cluster is a functional whole composed by companies belonging to it and

more than the sum of its components". Also, benefits are expected to arise from this collaborative network. (Finnish Maritime Society)

No classification of industries in the Finnish maritime cluster can be found in the standard industrial classification used by the Central Statistical Office of Finland because an industry called maritime cluster does not actually exist: instead, it consists of several different industries. Furthermore, industrial classification does not offer definitions for maritime operations because some industries belong exclusively to the maritime cluster while in others only a small number of companies are included in the maritime cluster. (TEKES report, 2008) Figure 1.4 presents the Finnish maritime cluster.

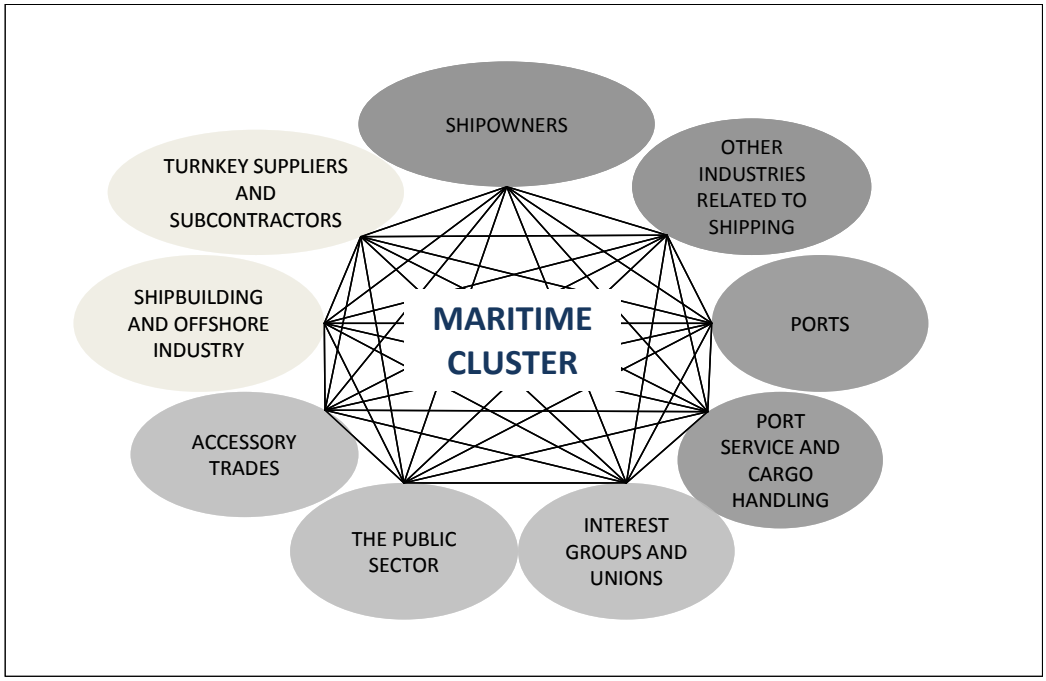

Figure 1.4 Finnish maritime cluster (TEKES report, 2008)

The core of the maritime cluster is formed by the maritime industry (i.e. the shipbuilding and offshore industry as well as turnkey suppliers and subcontractors), industries related to shipping (i.e. shipowners and other related industries), and port services with cargo handling. Shipbuilding and repair yards as well as offshore production plants are the focal actors in the maritime industry. Gathered around them are a great many other maritime industry companies such as subcontractors and turnkey suppliers, engineering offices and component manufacturers. (TEKES report, 2008)

The representatives of shipyards and offshore plants (i.e. focal actors) of the Finnish maritime industry who participated in the ALKU project (a research project entitled "Alihankkijasta kehittämiskumppaniksi" aimed at small-scale enterprises in maritime networks) identified three focal preconditions needed to be competitive in their sector:

1) innovativeness, 2) networking, and 3) balanced interaction in a network. All these preconditions emphasize the role of networking and collaboration; innovations should be based on collaboration in a network; digitalization enables global networking; and added value is ensured by collaboration, commitment, and openness.

Shipbuilding networks are a close community of specialized and independent companies each having their own technology and supply networks. According to the focal actors of the maritime industry (i.e. shipyards), the objectives and advantages of a network are: continuous development of superior strategic know-how; high productivity, efficiency and flexibility; decreased lead times; predictability of costs and productivity; and the commitment of network suppliers as a cluster. The expected preconditions for the network supplier are innovation capability, continuous improvement of one's own actions and productivity; technological improvements; firm offers and best quality; and commitment, reliability, and entrepreneurship. The shipyards also stress the ability of network companies to have the required know-how and competence to act in a motivated and trustworthy way in the network.

Furthermore, the success factors of increased networking recognized by a shipyard (STX Europe, 2011) are commitment to the shipyard as early as the development and tender stage, the network supplier's own technology development as well as open and honest participation in the process and recurrent operations. Moreover, the common objectives for both the shipyard and the network are decreased lead times, a radical increase in the industrialization rate, improved management of logistics, openness, transparency, information sharing, and improved reaction time. (STX Europe, 2011)

Both specialization and networking are expected from companies in the maritime industry. Also, collaboration is directed towards deeper partnerships rather than arm's length relations, towards increased collaboration also with foreign partners, towards increased openness, and not so much on adding to the number of partners. The starting point for developing collaboration is a thorough absorption into each other's businesses. Business partners have to first understand the needs and possible conflicts of interest. Not until then is it possible to develop collaboration. However, criticism has also been expressed in connection to the way the shipbuilding industry handles its relations with subcontractors. Instead of deep and collaborative development, companies are invited to tender thus leading to short-term profits but at the same time, ignoring the possibilities for long-term optimization. (TEKES report, 2008)

In the maritime industry, one of the most important factors of competitiveness is a strong supplier network. Procurement accounts for almost 80 % of the total value of production in the Finnish maritime industry. Here, the subcontractors are mostly system or component suppliers supplying increasingly larger entities. The system suppliers have their own subcontracting networks and companies in the furthest circle of the

networks produce outputs that have customers also in other product branches. This way the whole network is not as exposed to business cycles as the domestic shipbuilding network. (TEKES report, 2008)

Recently, specialization has been a key trend in the Finnish maritime cluster as in all major industries. To improve their competitiveness and to optimize production, companies focus on producing the products and services in which they have the best competence. Developing specialization is seen to be a precondition for success, and collaboration is an integral part of specialization. Collaboration is needed so that companies concentrating on their core product or service can produce the ensembles needed. Thus, specialization and collaboration are the keys to success in the Finnish maritime cluster (TEKES report, 2008) therefore for their part justifying the focus on this one line of industry.

1.4. Structure of the study

This study consists of five parts. Each part concentrates on a particular theme: introduction, literature review, theoretical framework, empirical study, and conclusions. Figure 1.5 presents the structure of the dissertation.

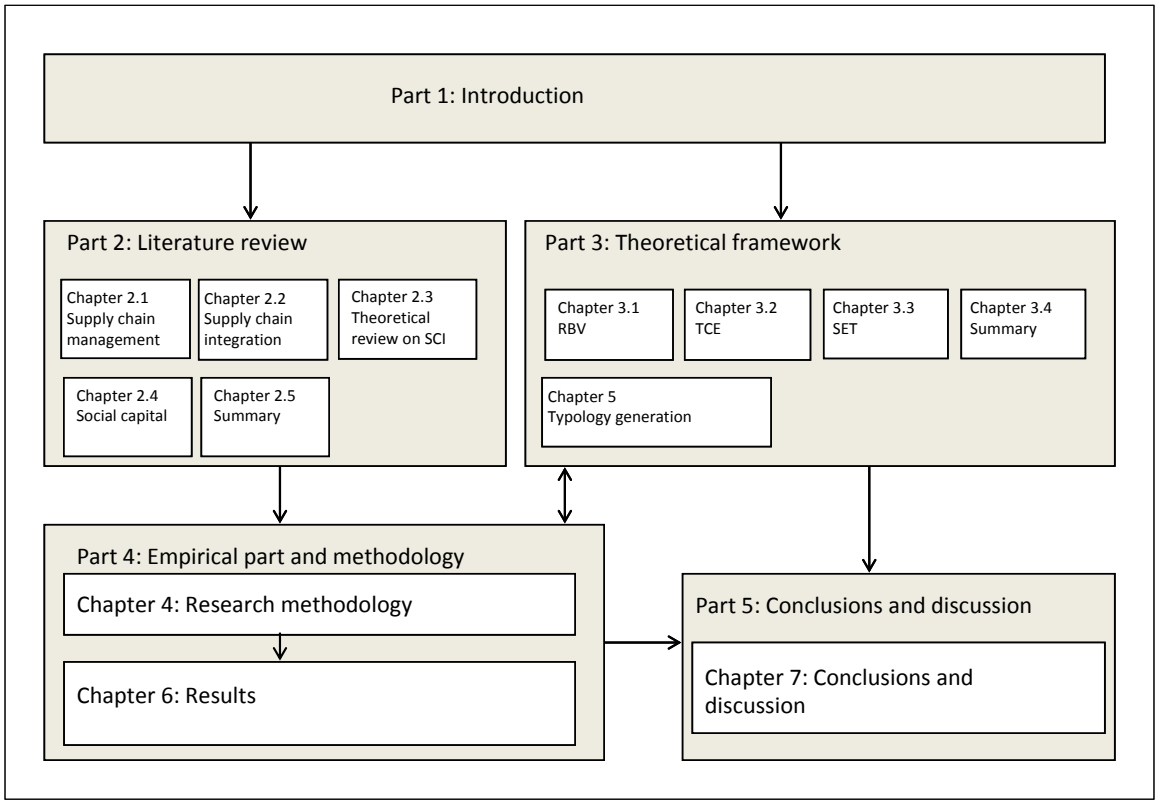

Figure 1.5 Structure of the study

In Part 1, Chapter 1 describes the motivation for the research, defines the research problem and presents the developed research questions. Also, the Finnish maritime industry as an empirical research context is discussed and the structure of the study is presented.

In Part 2, Chapter 2 focuses on the focal elements of the research field in hand. The state of the art of supply chain integration (i.e. collaboration) as an embodiment of supply chain management (SCM) is discussed and the concept of SCI together with a classification of relationship types are presented. The chapter includes a theoretical review on SCI. Then, social capital as the scope of the research is discussed and the gap observed in the previous research is introduced.

In Part 3, Chapter 3 discusses the theoretical framework of the study stemming from RBV and TCE and completed by SET. First the relation of RBV and TCE towards inter-organizational relationships and the relational aspects of collaboration are discussed and then, the role of SET as a widening element regarding relational skills is emphasized. The theoretical framework also offers a basis for classifying network companies based on their relational skills and the business impacts of relationships, resulting in the typology introduced in Chapter 5.

Social capital as the focal scope of the study is discussed in the literature review (Chapter 2) to clarify its essence and relation to supply chain management and collaboration. The framework section (Chapter 3) strives to form a basis for the empirical part of the study. The framework also acts as a theoretical answer to the research questions at hand.

In Part 4, Chapter 4 introduces the applied research methodology and data. In this study, the iterative grounded theory (GT) approach together with conceptual analysis and multiple case study is applied and therefore, data collection and analysis process cannot be separated or called one specific methodology.

The fourth part focuses on empiricism, presenting the results of the empirical observations on the Finnish maritime industry (Chapter 6). In this chapter, companies are classified based on their relational skills and the business impacts of relationships following the typology presented in Chapter 5.

In Chapter 7, the content and significance of the ultimate argument of the thesis are discussed. The research questions are also answered in this chapter. The chapter presents the key empirical findings and discusses both the contributions from a theoretical viewpoint as well as the managerial implications. In addition, the limitations of the study are discussed and suggestions for future research are given.

2 LITERATURE REVIEW

The focus of this research is the role of network companies' relational skills on the competitiveness of networks. Business networks are composed of chains and dyads of companies and therefore the network can be analyzed through dyads, utilizing supply chain management (SCM) and supply chain integration (SCI) views. Figure 2.1 shows the research field, viewpoint, and the scope of this study.

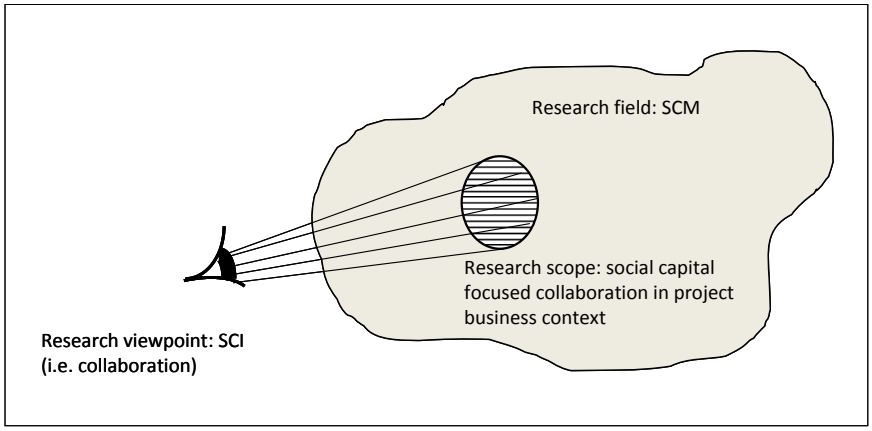

Figure 2.1 Research field, viewpoint and scope

Chapter 2 defines and discusses the focal themes of the thesis. First, supply chain management aiming at enhancing productivity and competitiveness through supply chain integration is discussed. Second, supply chain integration as the core of successful supply chain management is reviewed. Then, there is a discussion of supply chain collaboration in the project business context and the dimensions of social capital as the focal relational elements of collaboration. At the end of this chapter, a gap in the research is highlighted.

2.1. SCM – a management strategy

Basically, supply chains can be seen as "a set of three or more entities directly involved in the upstream and downstream flows of products, services, finances and/or information from a source to a customer" (Mentzer et al., 2001). This is only one of countless definitions and in general, the field of supply chain management does suffer from a lack of clarity in its definitions. For example Harland (1996) suggests four main uses of the term SCM including the internal chain, dyadic relationships, external chain

and network. Mentzer et al. (2001) define SCM as the "systematic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within a supply chain, for the purpose of improving the long-term performance of the individual companies and the supply chain as a whole". Based on their review, Mentzer et al. (2001) propose that SCM has the following characteristics: 1) a systems approach to viewing the supply chain as a whole, 2) a strategic orientation toward cooperative effort to synchronize intrafirm and interfirm capabilities into a single entity, and 3) a customer focus to create unique and individualized sources of customer value leading to customer satisfaction (Seuring, 2008).

SCM is a management strategy aimed at enhancing productivity and competitiveness through supply chain integration or in the words of Kim (2006): "the ultimate goal of SCM is to enhance competitive performance by integrating the internal functions within a company and effectively linking them with the external operations". Besides including multiple echelons, a supply chain focuses on integration, has goals of service and profitability, and emphasizes collaborative processes and value-adding considerations (Stonebraker and Liao, 2004). According to Chandra and Kumar (2001), the philosophy's fundamental premise is synchronization among multiple independent business entities and improved coordination both within and between various supply chain members.

As the descriptions of SCM above indicate and as articulated by many researchers (cf. Ellram and Carr, 1994; Gadde and Håkansson, 1994), SCM is an integrative function. As such, SCM is concerned with "managing relationships with suppliers and customers in order to deliver the best customer value at the lowest cost" (Stevens, 1989). As Lambert and Cooper (2000) state, SCM means "the integration of key business processes from the end user through the original suppliers that provide products, services and information that add value for customers and other stakeholders." In other words, SCM seeks to enhance competitive performance by closely integrating the internal functions within a company and effectively linking them with the external operations of suppliers, customers, and other channel members (Kim, 2006). Thus, integrating business processes within and across organizational boundaries is a core element of SCM (Ellram and Carr, 1994; Gadde and Håkansson, 1994; Mentzer et al., 2001). The management of these business processes requires close collaboration among the different parties in the supply chain in order to achieve the ultimate goal of SCM, i.e. satisfying customer requirements and reducing costs. (Li et al., 2009) According to Patnayakuni et al. (2006), one approach to effectively managing the supply chain is through integration of supply chain processes across partner organizations. Towards this, firms need to integrate with members of their supply chains and this requires cooperation, partnership, and management of collaborative relations.

According to Narasimhan et al. (2009), the emphasis on supply chain management strategies aimed at fostering the development of supply chain partnerships includes the basic principle that building cooperation and collaboration over time increases the efficiency and effectiveness of the relationship. Griffith et al. (2006) also argue that a basic tenet of SCM is that ongoing relationships among supply chain members increase efficiency and effectiveness.

2.2. SCI – the core of successful SCM

Integration is widely considered the core of successful SCM because the implementation of SCM needs the integration of operations across the supply chain (Cooper et al., 1997b; Ellram and Cooper, 1990; Mentzer et al., 2001). The integrated supply chain view applies a number of terms that indicate the need for closer relationships. These terms include trust, commitment, co-operation, coordination, and collaboration between supply chain partners to ensure the success of these arrangements. The various definitions of supply chain management have encouraged authors to define the concept of supply chain integration (SCI) in many ways as well. Table 2.1 presents a sample of definitions associated with the concept of SCI found in the literature. This table is not intended to provide a comprehensive review of SCI definitions; rather the purpose here is to highlight the overlapping approaches and the somewhat unclear handling of the phenomenon of SCI that exists in the literature.

Table 2.1 A sample of definitions and dimensions of supply chain integration

Author	Definition	Focus/dimensions	Classifying variables
Harland (1996) and Stonebraker and Afifi (2004)	Phases of integration	Internal flow of materials and information, dyadic relationships, extended relationships, networks of inter-connected businesses	Type and extent of relationships, nature, number and role of participants
Narasimhan et al. (2008), Kim (2006)	Components or levels of integration	Supplier integration, strategic cross-functional integration within a company, customer integration	Nature, number and role of participants, direction of integration
Frohlich et al. (2001)	Arcs of integration	Inward-facing, periphery-facing, supplier-facing, customer-facing, outward-facing	Activity´s strategic position, direction and extent of integration
Bask et al. (2001)	Dimensions of integration	Structural integration, systems integration, process integration, relational integration	Intensity of integration
Fawcett et al. (2002)	Types of integration	Internal integration, backward integration, forward integration, complete integration	Nature, number and role of participants, direction of integration

Bagchi and Skjoett-Larsen (2002)	Modes of integration	Information integration, organizational integration	Situational factors, business environmental factors, degree of integration
Fabbe-Costes et al. (2008)	Layers of integration	Flows, processes and activities, technologies and systems, actors	Nature, number and role of organizations or participants, direction of integration

Like the concept of SCM, the concept of SCI has also been defined in many ways. Some references like Harland (1996) and Stonebraker and Afifi (2004) propose that characteristics in supply chain integration processes have four sequential phases: a) internal flow of materials and information, b) dyadic relationships with immediate suppliers and customers, c) extended relationships with the supplier's supplier and the customer's customer and d) networks of inter-connected businesses involved in the delivery of product and service packages. Bowersox (1989) claims that the process of supply chain integration should progress from the integration of internal logistics processes to external integration with suppliers and customers (cf. Kim, 2006). Bagchi and Skjoett-Larsen (2002) for their part propose two modes of categorizing integration: information integration and organizational integration, and three stages of integration within each mode, namely low, medium, and high. They also define two stages of supply chain integration: low integration and high integration. Internal integration can be defined as "the degree to which firms are able to integrate and collaborate across traditional functional boundaries to provide better customer service" (Chen and Paulraj, 2004). External integration refers to "the degree to which a company can partner with its key supply chain members in order to fulfil customer requirements" (Zhao et al., 2008). According to Gimenez (2006), internal integration refers to the collaboration and coordination of different functional areas inside a company. Such collaboration and coordination means formal teamwork and sharing ideas, information and other resources. Furthermore, integration means joint planning to anticipate and resolve operational problems, joint establishment of objectives, joint development of the understanding of responsibilities, and joint establishment of decisions about how to improve cost efficiencies. Thus the implication is that there is a need to move from an arm's length type of relationship to more of a partnership approach in which trust and information sharing are vital. External integration refers to the integration of a company's activities with those of their customers and suppliers (Stock et al., 1998).

Kim (2009) considers three integration levels – a company's integration with suppliers, cross-functional integration within a company, and a company's integration with customers. Furthermore, the SCI level is said to have a positive influence on

performance outcomes (Frohlich and Westbrook, 2002; Vickery et al., 2003). Frohlich and Westbrook (2001) empirically identified that manufacturers with the broadest arcs of SCI should have the highest levels of performance improvement. It is generally agreed that both internal and external integration of operations is needed for improved performance. As Narasimhan and Jayram (1998) and Frohlich and Westbrook (2001) put it, the higher the level of upstream and downstream integration, the greater the benefits.

2.2.1. Theoretical research on SCI

To summarize the above, SCI can be seen as the embodiment of SCM and so it is considered the core of successful SCM both among academics and practitioners (Cooper et al., 1997b; Ellram and Cooper, 1990; Mentzer et al., 2001). However, the phenomenon of SCI is complex, with considerable diversity in conceptualization and classification as well as spanning both intra- and inter-organizational boundaries (e.g. Tan, 2001; Frohlich and Westbrook, 2001; Van der Vaart and van Donk, 2008). The mere term integration is defined as "the unified control of a number of successive or similar economic or especially industrial processes formerly carried out independently" (Webster's 1966, p. 1175). Applied in a supply chain context, supply chain integration can be defined as "the degree to which a firm strategically collaborates with its supply chain partners and collaboratively manages the intra- and inter-organizational processes" (Flynn et al., 2010). Thus, SCI refers to the adoption and use of collaborative structures, processes, technologies and practices among supply chain partners in order to build and maintain a seamless flow of precise and timely information, materials, and finished goods (Vijayasarathy, 2010). As Lee et al. (1997) put it, by integrating processes and promoting information sharing, supply chain partners aim to minimize the disruptions associated with demand fluctuation (i.e. the bullwhip effect). SCI has also been defined as "the degree to which a manufacturer (focal company) strategically collaborates with its supply chain partners and collaboratively manages intra- and inter-organizational processes, in order to achieve effective and efficient flows of products and services, information, money and decisions, to provide maximum value to the customer" (Flynn et al., 2010). Thus, both the collaborative and value-creating views are emphasized in definitions of SCI.

Although the concept of SCI is seen as a fundamental principle of SCM, it is not yet widely agreed on. Researchers have tried to conceptualize SCI, for example in terms of scope, supported function, management direction, and the means used to accomplish it (Vijayasarathy, 2010). Scope refers to the extent to which a focal company has integrated its processes both internally and externally and has been examined e.g. as arcs of integration (Frohlich and Westbrook, 2001), stages of integration (Cooper and

Ellram, 1993), phases of integration (Harland, 1996; Stonebraker and Afifi, 2004), and strategic integration. According to Vijayasarathy (2010), integration has also been studied by focusing on a specific facet of the supply chain, for example distribution, purchasing (Narasimhan and Das, 2001), information and communication systems (Kim et al., 2006), and product development. Integration has also been classified in terms of the directionality of its management so that forward integration refers to the management of integration from supplier to manufacturer to customer and backward integration is the reverse, where the focus is on integration from customer to manufacturer to supplier (Vijayasarathy, 2010).

As stated by Mena, Humphries and Wilding (2009), there is a confusing terminology both in industry and academia surrounding the concept of supply chain integration. According to a literature review based on 16 theoretical or review papers in focal journals in the field of SCM and SCI (The International Journal of Logistics Management, Supply Chain Management: An International Journal, International Journal of Physical Distribution and Logistics Management, International Journal of Operations & Production management, Journal of Supply Chain Management, Journal of Operations Management, Journal of Business Logistics and Project Management Journal by publishers like Elsevier and Emerald in databases such as ABI Inform, EBSCO & Science Direct), a summary (Table 2.2) follows of SCI-related theoretical research including the key content and findings.

Table 2.2 Summary of SCI-related theoretical research

Author(s), year	Focal content/findings
Fabbe-Costes and Jahre, 2007; Shub and Stonebraker, 2009	**SCI** as a definition, phenomenon, and measured variable **is complex**. Both conceptual and theoretical research was done. The findings indicate that the **contribution of SCI is not obvious** and many papers have a gap between the discussion of integration and the measures of integration. Very few papers include performance of others in the SC in addition to the focal firm and most studies suffer from weak measurement either of SCI or of performance or of both.
Fabbe-Costes and Jahre, 2007 and 2008	There are **conflicting views about the benefits of SCI.** The interrelation between SCI and performance was studied. The findings suggest that more SCI does not always improve performance. Measuring performance could mean focusing on financial indicators or it could be a mix of operational and financial indicators. The importance of defining whose performance is measured is emphasized.
Barrat, 2004; Shub and Stonebraker, 2009	The **elements of SCI are "soft", complex to outline and measure**. Interrelations between cooperation, trust, commitment and performance were studied.

Stonebraker and Liao, 2004	**Dynamic environment is challenging for SCI**. The effect of environmental turbulence on the need for SCI was studied.
Giunipero et al., 2008	**Need to focus on the relational aspect of SCM and on network level analysis** is emphasized.
Segerstedt and Olofsson, 2010	**Project-based business is ignored in SCI research**. Reasons for this are complexity, diversity, and discontinuity.

Following from the theoretical review on SCI, we can conclude that no more studies are needed of the concept per se, nor of its definitions. Some challenges for research, however, arise from the above review. The "soft" and complex elements of SCI need more attention (cf. Barrat, 2004; Shub and Stonebraker, 2009) and focusing on the relational aspects of SCM together with network level analysis is called for (cf. Giunipero et al., 2008) together with emphasis on project-based business in SCI research (cf. Segerstedt and Olofsson, 2010).

2.2.2. Focus on relationship view

According to Fawcett and Magnan (2002), the word integration is widely used to describe the intensity and nature of supply chain relationships and thus they propose the words cooperation and collaboration be used when emphasizing this relationship viewpoint. Collaboration or a collaborative relationship can be explained for example by applying the definition from Ellram (1991), which defines a partnership as "an agreement between the buyer and a supplier that involves a commitment over an extended time period, and includes the sharing of information along with a sharing of the risks and rewards of the relationship". Despite the overlaps in definitions of the contents, true integration, i.e. aligned objectives, open and candid communication, pooled resources and shared risks and rewards, remains rare in the opinion of Fawcett and Magnan (2002).

In this thesis, the following definitions are used:

SCI means the management of relations in order to deliver the best customer value at the lowest cost.

The term collaboration is used synonymously with SCI to emphasize the focus on the relationship view.

In this study, SCI, or collaboration, is seen as an embodiment of SCM, which implements the goals of SCM and on the other hand, copes with the same challenges. Furthermore, the focus here is on the relationship view between network participants

thus supporting the use of the word collaboration. Still, SCI is widely used in the research literature and therefore, if used in the referred sources, the term SCI is not replaced with the word collaboration. However, the meaning of the two words is more or less similar and therefore understood as synonyms in this study.

2.2.3. Relationship types

Next, the different types of supply chain relationships are reviewed in short to clarify the location of supply chain collaboration in the continuum of relationships.

According to Kampstra et al. (2006), arm's length relationships are purely transactional and do not have any degree of collaboration. Arm's length implies a zero-sum case where one wins while the other loses. An arm's length relationship is characterized by a focus on price and by few points of contact between the organizations concerned (Harrison and van Hoek, 2011). Nor is supply chain collaboration the same as joint ventures or strategic alliances, which normally contain some degree of shared ownership across the parties (Lambert et al., 1996). Nor is it the same as vertical integration, whereby there is common ownership of many supply chain members (Cooper et al., 1997b). Harrison and van Hoek (2011) present a transition route (after Speckman et al., 1998) from open market negotiation to collaboration. According to their model, open market negotiations are mainly price-based negotiations with arm's length relationships, whereas cooperation stands for fewer suppliers and longer-term contracts. Coordination includes information links, e-enablement and integration, and finally, collaboration means joint supply chain strategies and technology sharing. Figure 2.2 represents a model of the different types of relationships and their reciprocal linking.

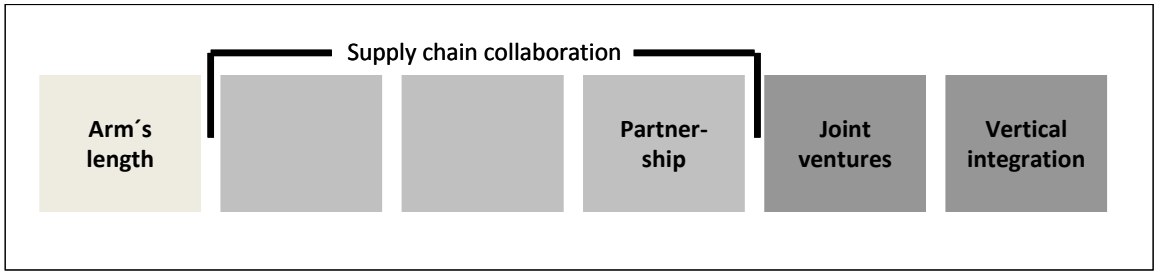

Figure 2.2 Types of relationships (Lambert et al., 1996)

Day (2000) uses a similar representation for relationships ranging from transactional exchanges with minimal personal relationships and no anticipation of future exchanges to collaborative exchanges close to vertical integration where a company controls all aspects of the supply chain. Also in this continuum, collaboration, or value-adding exchanges, is in the middle ground. Based on Barrat´s (2004) definition, it can be

concluded that SCI stands for vertical collaboration, that is, it focuses on relationships with customers, internally, and with suppliers.

2.2.4. Managing supply chain relations

Handfield and Bechtel (2002) state that although much of the research has focused on analytical approaches to managing supply chains, the area that requires the greatest work is managing supply chain relationships. As discussed earlier, in supply chain management the relations between parties are emphasized and relations have also been categorized (cf. Kraljic, 1983) to manage them better. Kanter (1989) argues that a successful partnership requires the management of the relationship, not just a focus on the business deal. To improve the management of business relations, relationships can be categorized based on specific characteristics. This is typical especially in the field of supply chain management where, for example, suppliers and procurement relations have been classified based on the purchased product's business impact (value or cost) and supply risk (cf. Kraljic, 1983) resulting in four sourcing strategies. Another example of classification is a model considering inter-firm dependency and certainty as key variables for the management of relationships. This Strategic Relationship Positioning Model (SRPM) (Cousins et al., 2008a) develops four relationship management strategies at the product/service level. The alignment model (i.e. the Strategic Focused Outcomes Model, SFOM) introduced by Cousins et al. (2008a) shows the interaction between the two previous models: the relationship focus, the type of product and service being purchased, as well as the strategic nature of the supply function being either cost- or differentiation-focused and the business benefits being viewed either short- or long-term.

In addition to supply chain management, also in the field of marketing, relationships have been deductively studied thus leading to various models of relational exchange (cf. Dwyer et al., 1987; Anderson and Narus, 1990; Mohr and Spekman, 1994; Morgan and Hunt, 1994). According to Dwyer et al. (1987), marketing research has neglected the relational aspects of the buyer-seller exchange and therefore they propose a five-phased model for forming and developing buyer-seller relationships. According to their model, relationships evolve through phases identified as 1) awareness, 2) exploration, 3) expansion, 4) commitment, and 5) dissolution. In their model, awareness is a unilateral, pre-exchange process. Dyadic interactions and mutual considerations start the exploration phase. If the parties communicate effectively and form expectations for promising future interaction, the association then enters the expansion stage. The commitment phase supports high levels of mutual dependence by restricting the exchange relation with value structures and contractual mechanisms, thus ensuring the

durability of the relationship. Dissolution or disintegration is not a reversal of the process and moreover, it may be complex and costly.

A model of a working partnership between distributor and manufacturer building on social exchange theory is presented in the paper by Anderson and Narus (1990). In their paper the relationship between cooperation and trust was assessed empirically in marketing channels for the first time and the authors found support for the re-specification of cooperation as an antecedent rather than a consequence of trust. They suggest that iteratively, cooperation leads to trust which leads to greater willingness to cooperate in the future which then generates greater trust, and so on. Their study also contributes by suggesting several ways (e.g. updating knowledge of partner company's requirements or expectations, meaningful joint annual planning and training boundary-spanning personnel) in which both manufacturer companies and distributor companies can actively manage their working partnership.

Characteristics associated with partnership success have been studied by Mohr and Spekman (1994). In their study, they present the hypothesis that partnership attributes, communication behavior, and conflict resolution techniques are related to satisfaction and sales volume in the relationship, i.e. the indicators of partnership success. The hypotheses of the research are tested in the personal computer industry. The results indicate the focal characteristics of partnership success: partnership attributes of commitment, coordination, and trust; communication quality and participation; and the conflict resolution technique of joint problem solving. In their study concerning successful relational exchange, Morgan and Hunt (1994) theorize that successful relationship marketing requires relationship commitment and trust; model them as key mediating variables; test this model in automobile industry; and compare their model with a rival that does not allow relationship commitment and trust to function as a mediating variable.

As a summary of Chapter 2.2, we can conclude that SCI stands for vertical collaboration emphasizing both the collaborative and value-creating views and focusing on relationships with customers, internally and with suppliers. Thus, in order to improve performance both internal and external integration of operations is needed. Furthermore, managing supply chain relations is recognized as the area requiring the greatest attention.

2.3. Supply chain collaboration in the project business context

2.3.1. Achieving integration in the project context

Even though supply chain integration has been commonly recognized as a focal enabler of improved business performance, there are only a few frameworks that have explained the effect of the business environment on SCI or how the actual integration mechanisms work, especially in the project business context (cf. Segerstedt and Olofsson, 2010; Mills et al., 2004). Instead, SCI has been considered mainly in manufacturing-like environments with sequential interdependence within supply chains, such as automotive and other consumer product industries. However, as Segerstedt and Olofsson (2010) argue, managing relations (i.e. collaboration) in a project environment needs more focus, and so do the relational aspects of collaboration (cf. Giunipero et al., 2008) as well.

A dominant focus on projects, fragmentation of the industry, as well as separation of the design and production processes are typical for project-based companies and networks (Bankvall et al., 2010). The major distinction between the project industry and manufacturing is that the project industry is of a discontinuous nature while manufacturing industries involve continuous processes and relationships. The management of supply chain relationships is problematic in project-based industries due to i) the discontinuity of demand for projects, ii) the uniqueness of each project and iii) the complexity of each project in terms of the number of actors involved. Like Mills et al. (2004), Segerstedt and Olofsson (2010) argue that the fields of supply chains and networks contain important problem areas, for example models of trust between organizations. However, the heavy concentration of research on manufactured consumer products and components might be responsible for a lack of theory development. They also argue that if a theory is to be developed, researchers should look a little less at the same kinds of industrial networks and transactions and more at those that are different. Obviously, there is room for theory-based research as well as examining SCI in unestablished dynamic environments such as the construction industry and other project-based industries. There, environments and organizations are constantly in a dynamic state, offering an interesting and challenging area worth studying.

Achieving integration is recognized as a key objective of supply chain management (Vijayasarathy, 2010). Yet, the factors conducive to reaching the state of integration have not been sufficiently examined. Trust, commitment and mutual dependence have been proved to have a significant influence on SCI, suggesting that relational norms are critical and that supply chain partners should improve their relationships if they wish to achieve higher levels of SCI and further, better competitiveness. For example, relational exchange theory suggests that cooperation, communication, and trust are key relational

norms that can substitute for normal contracts (Dyer and Singh, 1998). The role of trust is essential: according to various studies, trust has been shown to be a key determinant of information sharing, stability, and performance in supply chain partnerships (Dwyer et al., 1987; Handfield and Bechtel, 2002). As stated by Giunipero et al. (2008), there is a need for more research that seeks to understand the nature of the multiple links in supply chains and networks. They also point out that few studies focus on buyer-supplier relationship issues such as trust and collaboration.

According to Power (2005), the basis of integration can be characterized by cooperation, collaboration, information sharing, trust, partnerships, shared technology and a shift from managing individual functional processes to managing integrated chains of processes. However, achieving integration is not simple, as Cousins and Menguc (2006a) argue. Integration of supply chain activities requires dyadic involvement, i.e. consistent involvement of both the buyer and the supplier, and investing in socialization, which is critical to integration success. Socialization implies the level of interaction and communication between various actors within and between the firms. Barrat (2004) talks about collaborative culture, such as trust, mutuality, information exchange, openness and communication, which are all critical elements of integration. Barrat (2004) also stresses that these elements have been to a large extent ignored due to their complexity and, therefore, deserve significant attention in research.

On the basis of previous research, it can be concluded that there is room for theory-based research as well as examining SCI in dynamic environments such as the project business industry. Also managing relations (i.e. collaboration) in a project environment as well as the relational aspects of collaboration require more focus. Furthermore, studies concentrating on complex buyer-supplier relationship issues such as trust, mutuality, information exchange, openness and communication are called for.

2.3.2. Literature review on the context dependency of integration

In addition to a literature survey of SCI-related theoretical and review papers (see Chapter 2.2.1), a systematic review on the context dependency of SCI was conducted. A summary of the research context as well as the focal preconditions, methods and outcomes of SCI is made based on this systematic review of integration articles within 11 highly ranked academic journals in logistics, supply chain and operations management. The journals were the following: International Journal of Integrated Supply Management (IJISM); International Journal of Logistics Management (IJLM); International Journal of Operations & Production Management (IJOPM); International Journal of Physical Distribution and Logistics Management (IJPDLM); International Journal of Project Management (IJPM); Journal of Purchasing & Supply Management

(JPSM); Journal of Business Logistics (JBL); Journal of Operation Management (JOM); Journal of Supply Chain Management (JSCM); Project Management Journal (PMJ); Supply Chain Management: An International Journal (SCM-IJ). First, the method of systematic review is introduced.

The literature review is based on selected journals with searched themes such as *supply chain integration, integration, (strategic) collaboration, cooperation, partnership, partnering relationships, strategic partnering, buyer-supplier relationships, project relationships* and the *related benefits*. For the purposes of this study, only scholarly articles published in the English language between 2000-2010 were included. Table 2.3 shows the inclusion and exclusion criteria used for the articles.

Table 2.3 Inclusion and exclusion criteria

No.	**Criteria**	**Reason for inclusion or exclusion**
Inclusion criteria		
1	Published papers/articles since 01/2000	The main contributions to the theoretical concepts that were intended to explore started to be published after 2000, the decade during which SCI based academic research significantly increased
2	Papers/articles in English language	The language in which the main scholarly business journals are published is English
3	Papers/articles that aim to understand each of the studied constructs	This matches the objectives of this review to understand the meaning and content of each theoretical concept
4	Papers/articles that treat the relationships between two or more of the studied constructs	This matches the objective of this review to show the interdependencies and relationships between the different theoretical concepts
5	Papers/articles that address strategy issues	The main theoretical contributions related to the studied concepts have been made by strategic management scholars
6	Scholarly published papers/articles	To provide theoretical foundations for the propositions and assumptions that the review intends to develop
Exclusion criteria		
1	Papers/articles focused on economics or finance	These are concepts outside the scope of this review and the papers/articles treating them will not provide meaningful insights as regards the purpose of the review
2	Practitioner papers/articles with no theory	The contribution of these papers/articles is irrelevant to the purpose of this review

For the purpose of selecting journals, e-journal search engines such as Scirus and Google Scholar were used to obtain an estimate of the issue at hand. These search engines include access to the journals published by numerous publishers, in particular Elsevier and Emerald (ABI Inform, EBSCO & Science Direct) (see Table 2.4).

Table 2.4 Journal databases (modified from Moustaghfir, 2009)

Database	*Areas*
ABI Inform	This database includes details on virtually every aspect of business and management from 1986.
EBSCO	This database is the world´s largest full text database for scholarly business journal and peer-reviewed publications, including virtually all subject areas related to business.
Emerald	Emerald publishes the world´s widest range of business and management journals allowing access to the latest research and global thinking.
Science Direct	Science Direct contains over 25% of the world´s science, technology and medicine full text and bibliographic information.

In order to avoid too narrow a view of the question, journals on supply chain management and business logistics as well as operations and project management were included. The journal selection was developed after investigating those that had been examined in previously published articles. For example the IJOPM, IJPDLM and JOM were studied by Fabbe-Costes and Jahre (2007), JSCM, IJPDLM, JOM, IJLM, JBL and IJOPM by Giunipero et al. (2008), IJLM, IJOPM, IJPDLM, JBL, JOM and SCM-IJ by Fabbe-Costes and Jahre (2008), and JBL, JSCM, IJPDLM and IJLM by Defee et al. (2010).

Based on this selection, a systematic search for articles published between 2000 and 2010 was made using the following criteria: either the term or the idea of supply chain integration (also other terms with similar meaning were taken into account) had to be included in the title, keywords, and/or abstract. Thus for example the word SCI or related issues such as integration or (strategic) collaboration/coordination and the association of SCI with benefits were searched for.

The search resulted in 187 articles from a total of 3782 published in these 11 journals between 2000-2010. These 187 papers were viewed and all papers reporting on empirical studies or discussing SCI and its context were selected as a basis for analysis. In total, 76 papers were read more thoroughly (the distribution of articles in the 11 journals is listed in Appendix 1) with the focus on four points:

1. the way the context (i.e. branch of industry or type of product, length of relationship) was defined or described
2. the way the need (i.e. situational dimensions) for SCI was identified or reported
3. the way the means (i.e. structural/process dimensions) for SCI were defined
4. the way the expected/potential/realized benefits (i.e. outcome dimensions) of SCI were defined or reported.

Table 2.5 shows the classification framework for this literature review.

Table 2.5 Classification framework for literature review

Grouping	Content covered	Rationale
1. Context	Branch of industry, product type, length of relationship, company size	Describe the discussion of context in SCI related research
2. Need for SCI	Preconditions, antecedents, expectations, situation, demands	Determine the focal drivers for SCI
3. Means for SCI	Constructs, focal elements, participants of SCI	Determine the common methods of SCI
4. Benefits	Impact on operational/financial/customer performance, innovation, lead time, costs etc.	Describe the manifestation of SCI

Next, the results from the analysis of the context as well as the situational, structural and outcome dimensions of SCI (i.e. collaboration) included in the studies are presented.

2.3.2.1 Context in SCI related research

In their literature review, Fabbe-Costes and Jahre (2008) report that the relation between SCI and performance has mostly been studied on a mixed-industry base whilst other studies focus on a specific industry or sector. According to their study, most papers have a multi-echelon empirical base while some focus on the manufacturer and the remainder of the papers on first tier suppliers or another single focal firm. The majority of papers do not justify their empirical choices. However, a few argue that a mixed industry approach ascertains the generalizability of the results while others point out the difficulty in drawing any general conclusions because of particular characteristics of the supply chains that may not apply to other sectors. Fabbe-Costes and Jahre (2008) stress that the varying context (industries and countries) from which the data has been collected may be part of the explanation of the unclear evidence between the relation of SCI and performance. They point out that a number of papers lack conscious and in-depth discussions of the implications and possible limitations of their collected data. Furthermore, according to their study, very few papers reflect upon how specific situations impact on the ways and reasons for supply chains being integrated or not and what effect this may have – if any – on performance. The authors argue that the suitability of different organization forms or structures is dependent on the characteristics of the context and, therefore, to study SCI from the context view would also benefit theory building.

In the same vein Mills et al. (2004) in their review state that if theory is to be developed, more SCI research needs to be done in industrial networks that are different from manufactured consumer products and components. Bygballe et al. (2010) also conclude

that more research is needed to study the development and use of the partnering concept in different institutional and national settings and especially in the Nordic countries.

Relationship length and branch of industry are examples of context factors. Observations from the systematic review present research focused on long-term relationships (Table 2.6). On the other hand, there are even more papers that do not report the length of relationship studied.

Table 2.6 Systematic review on relationship length

Relationship length	# of papers	Authors
Long-term orientation	21	*Welling and Kamann (JSCM), Kwon and Suh (JSCM), Paulraj and Chen (JSCM), Parker et al. (JSCM), Kamann et al. (JPSM), Saccani and Perona (JPSM), Fynes et al. (JPSM), Kent and Mentzer (JBL), Kahn et al. (JBL), Zachria et al. (JBL), Autry and Golicic (JOM), Nyaga et al. (JOM), Lockström et al. (JOM), Huang and Newell (IJPM), Kadefors (IJPM), Chen and Chen (IJPM), Simatupang and Sridharan (IJPDLM), Carsten and Felde (IJPDLM), Wilding and Humphries (IJPDLM), Hsu et al. (IJPDLM), Peck and Jüttner (IJLM)*
Short-term interaction	2	*Gadde and Dubois (JPSM), Packham et al. (IJPM)*
Both long- and short-term	1	*Martinsuo and Ahola (IJPM)*
Not known/reported	52	*Dietrich et al. (PJM), Sanders (JSCM), Romano (JPSM), Stank et al. (JBL), Narasimhan and Kim (JBL), Rodrigues et al. (JBL), Sanders and Premus (JBL), German and Iyer (JBL), Fawcett et al. (JBL), Chen et al. (JBL), Chen et al. (JBL), Frohlich and Westbrook (JOM), Narasimhan and Kim (JOM), Rosenzweig et al. (JOM), Vickery et al. (JOM), Droge et al. (JOM), Das et al. (JOM), Cousins and Menguc (JOM), Paulraj et al. (JOM), Mishra and Shah (JOM), Flynn et al. (JOM), Black et al. (IJPM), Wong and Cheung (IJPM), Beach et al. (IJPM), Gimenez (IJPDLM), Richey et al. (IJPDLM), Gimenez and Ventura (IJLM), Bagchi et al. (IJLM), Dainty et al. (SCM-IJ), Briscoe and Dainty (SCM-IJ), Lönngren et al. (SCM-IJ), Kim (SCM-IJ), Sezen (SCM-IJ), Lee et al. (SCM-IJ), Fawcett et al. (SCM-IJ), Soosay et al. (SCM-IJ), Zailani and Rajagopal (SCM-IJ), Cetindamar et al. (SCM-IJ), Trkman et al. (SCM-IJ), Boon-Itt (IJISM), Lockström et al. (IJISM), Arlbjorn et al. (IJISM), Bagchi et al. (IJISM), Pagell and Wu (IJISM), Paulraj (IJISM), Spens (IJISM), Vargas et al. (IJOPM), Vereecke and Muylle (IJOPM), da Silveira and Arkader (IJOPM), Cousins et al. (IJOPM), Squire et al. (IJOPM), Lau et al. (IJOPM)*

Also, the systematic review revealed surprisingly many papers containing SCI research in the construction industry (Table 2.7) even though it is project-based and focuses on short-term or one-off gains and is therefore not the most obvious area for SCI, unlike automotive and manufacturing industries. However, as Dietrich et al. (2010) highlight in their study, the conditions in the construction sector often require extensive interfirm

collaboration. Collaboration between different actors in project-based industries is viewed as the key success factor in projects. In collaboration process, individuals or organizations also create relationships characterized by trust and commitment.

Table 2.7 Systematic review on branch of industry

Industry focus	# of papers	Authors
Construction	15	*Dietrich et al. (PJM), Welling and Kamann (JSCM), Kamann et al. (JPSM), Gadde and Dubois (JPSM), Autry and Golicic (JOM), Black et al. (IJPM), Packham et al. (IJPM), Kadefors (IJPM), Wong and Cheung (IJPM), Beach et al. (IJPM), Chen and Chen (IJPM), Martinsuo and Ahola (IJPM), Dainty et al. (SCM-IJ), Briscoe and Dainty (SCM-IJ), Lönngren et al. (SCM-IJ)*
Automotive	6	*Vickery et al. (JOM), Droge et al. (JOM), Mishra and Shah (JOM), Lockström et al. (JOM), Boon-Itt (IJISM), Lockström et al. (IJISM)*
Manufacturing	21	*Stank et al. (JBL), Rodrigues et al. (JBL), Sanders and Premus (JBL), Germain and Iyer (JBL), Zacharia et al. (JBL), Frohlich and Westbrook (JOM), Rosenzweig et al. (JOM), Das et al. (JOM), Paulraj et al. (JOM), Flynn et al. (JOM), Nyaga et al. (JOM), Kim (SCM-IJ), Sezen (SCM-IJ), Arlbjorn et al. (IJISM), Bagchi et al. (IJISM), Vargas et al. (IJOPM), Vereecke and Muylle (IJOPM), da Silveira and Arkader (IJOPM), Cousins et al. (IJOPM), Squire et al. (IJOPM), Lau et al. (IJOPM)*
Electronics	5	*Sanders (JSCM), Saccani and Perona (JPSM), Fynes et al. (JPSM), Chen et al. (JBL), Chen et al. (JBL)*
SC&SCM	7	*Kahn et al. (JBL), Fawcett et al. (JBL), Richey et al. (IJPDLM), Lee et al. (SCM-IJ), Fawcett et al. (SCM-IJ), Soosay et al. (SCM-IJ), Pagell and Wu (IJISM)*
Several	12	*Paulraj and Chen (JSCM), Parker et al. (JSCM), Romano (JPSM), Narasimhan and Kim (JBL), Narasimhan and Kim (JOM), Cousins and Menguc (JOM), Huang and Newell (IJPM), Corsten and Felde (IJPDLM), Hsu et al. (IJPDLM), Bagchi et al. (IJLM), Zailani and Rajagopal (SCM-IJ), Paulraj (IJISM)*
Others	10	*Kent and Mentzer (JBL), Huang and Newell (IJPM), Simatupang and Sridharan (IJPDLM), Gimenez (IJPDLM), Wilding and Humphries (IJPDLM), Peck and Jüttner (IJLM), Gimenez and Ventura (IJLM), Cetindamar et al. (SCM-IJ), Trkman et al. (SCM-IJ), Spens (IJISM)*

Supply chain integration is commonly known as a means to reduce transaction costs through building and managing long-term relations to gain direct or indirect performance benefits, especially in sequential ("established") manufacturing processes. However, the potential of SCI (i.e. managing relations) should not be forgotten in the project context either, as projects may last for a long time or include repetitive processes, assignments, and relations.

Based on the literature review, focusing on a specific branch of industry is necessary to avoid too general results and to observe better the possible relation between SCI and

performance. Additionally, the impact of specific situations on the need for SCI and its possible effects on performance have not been thoroughly considered. It is furthermore stated (cf. Mills et al., 2004) that to be able to develop theory, studying SCI in contexts other than manufactured consumer goods is also needed.

2.3.2.2 Situational, structural and outcome dimensions in SCI research

According to the literature, social resources embedded in social relations can be seen as "relational glue" in supply chain relationships and a focal antecedent for SCI (cf. Autry and Colicic, 2010). Dietrich et al. (2010) suggest that clear roles and a process for collaboration, trust, physical and cultural proximity, aligned incentives, commitment to collaboration, collaborative goals, conflict resolution and expectation fulfillment are essential preconditions for SCI. Likewise, Beach et al. (2005) name the elements of successful partnering as management commitment, equity, mutual vision, goals and objectives as well as trust. Wong and Cheung (2004) state that successful partnering is based on trust (a difficult element to be established for example in construction) and trust is also emphasized by Fawcett et al. (2008), Cetindamar et al. (2005) and Black et al. (2000), who conclude that trust, good communication, commitment, a clear understanding of roles, consistency and a flexible attitude are needed for partnering to succeed. Kwon and Suh (2004) see commitment as a key success factor in achieving SCI and trust as a root of fostering commitment. Lönngren et al. (2010) for their part argue that strategic alliances are a crucial requisite for the successful management and integration of services and production within the construction industry. In addition to social and relational capital, also the role of socialization, i.e. interaction and communication, is emphasized as an antecedent of SCI. As Cousins and Menguc (2006a and 2006b) conclude, socialization is seen as a mechanism facilitating and enhancing the SCI process. In the same vein, Stank et al. (2001) recognize mutual understanding, a common vision, shared resources, and the achievement of common collective goals as focal preconditions for SCI. In addition, some researchers stress the role of information technology as an enabler of SCI (Vickery et al., 2003; Sanders, 2005; Trkman et al., 2007) while others highlight the durability of the relationship, talking about "the shadow of the future" (Welling and Kamann, 2001; Kamann et al., 2006) and emphasizing long-term relationship orientation (Paulraj and Chen, 2007). To summarize the above, the focal preconditions for SCI are trust, commitment, shared views and objectives, good communication and IT.

SCI methods are mostly concentrated on information sharing. Several researchers recognize the focal role of information sharing and exchange as a central method of SCI. Dietrich et al. (2010) stress the importance of sharing project information electronically while others (cf. Stank et al., 2001; Flynn et al., 2010; Germain and Iyer,

2006) highlight information sharing both internally as well as towards customers and suppliers. Nyaga et al. (2010) call information sharing a collaborative activity leading to increased trust and commitment. In addition to information sharing, setting joint and synchronized goals and objectives is seen as an important mechanism in SCI (Dietrich et al., 2010; Kadefors, 2004; Wilding and Humphries, 2006; Peck and Jüttner, 2000; Gimenez and Ventura, 2003). In addition, Zailani and Rajagopal (2005) argue that, for the potential of SCI to be realized, the interrelationships among different parts of supply chain should be recognized and proper alignment should be ensured between the design and execution of the company's competitive strategy. Fawcett et al. (2008b) emphasize that the role of people as the key bridge to successful collaborative innovation should not be overlooked as companies invest in supply chain enablers such as technology, information, and measurement systems. Also, Cousins et al. (2008b) highlight monitoring the process of socializing the buyer and supplier to be critical to success.

Kahn et al. (2006) argue that while computer systems lead to improvements in supply chain performance, relationships make the greatest improvements. According to Nyaga et al. (2010), relational aspects such as trust and commitment lead to improved satisfaction and performance. Lowered transaction costs, reduced likelihood for problems and conflicts to occur as well as reduced opportunistic behavior are examples of efficient and effective performance resulting from collaboration (Kwon and Suh, 2004; Kamann et al., 2006). Other collaboration outcome elements are project success, potential for learning, and potential future collaboration (Dietrich et al., 2010). Vertical cooperation is also seen as an opportunity to make use of external resources (Welling and Kamann, 2001). According to Gimenez and Ventura (2003), external integration contributes to achieving reductions in costs, stock-outs, and lead times but also to gaining a competitive advantage. Bagchi et al. (2005) found a significant negative correlation between the length of relationship with suppliers and performance measures such as total logistics costs, on-time delivery, and rate of return. However, they also found clear indication of the value placed by the respondents on integration with key suppliers and customers for performance enhancement.

Zachria et al. (2009) argue that business performance is affected through operational (lower costs, improved quality, reduced cycle time) and relational (trust, credibility) outcomes. According to Kim (2006), in small firms efficient SCI may play a more critical role for sustainable performance improvement while in large firms, the close interrelationship between the level of SCM practices and competition capability may have a more significant effect on performance improvement. Cousins et al. (2008b) suggest that close links between buyers and suppliers are a critical differentiator of high and low performers in global supply chains. Rosenzweig et al. (2003) state that integration intensity influences capabilities and business performance directly and, likewise, Simatupang and Sridharan (2005) conclude that members having higher levels

of collaboration practices are able to achieve better operational performance for example in the form of order fulfillment, inventory, and responsiveness. Collective strategies also improve the ability of each participant to predict and understand the actions of others (Peck and Jüttner, 2000).

To summarize, SCI can be seen as an embodiment of SCM focusing on the same objectives. As in SCM, also in SCI the role of relations is essential. Relational elements such as common objectives, mutual trust and understanding as well as good communication are the focal antecedents of SCI. The role of information and knowledge sharing as well as focusing on joint activities are central in the actual SCI process and the outcomes of SCI can be seen both in "harder" operational elements (e.g. lower costs, improved quality) and in "softer" relational factors (e.g. trust, credibility). A successful SCI process presumably needs a clear goal as well as management and a connection between organizational level and supply chain or network level. Effective integration of the supply chain can create significant competitive advantages derived from enhancements in responsiveness and cost reduction, leading to improved performance and profitability. Yet, possessing the essential relational skills, i.e. having good integration ability, does not mean that a company can or should implement it – such decisions have to be made at management level, always taking note of the prevailing circumstances.

2.4. Social capital – focus on the relational aspects of collaboration

As stated by Portes (1998), social capital is the ability of actors to secure benefits by virtue of membership in social networks or other social structures. According to Granovetter (1992), social capital is a valuable asset that stems from access to resources made available through social relationships. Carey et al. (2011) define social capital as "the sum of the actual and potential resources embedded within, available through and derived from the network of relationships possessed by an individual or social unit". Burt (1992) and Loury (1977) define social capital as a set of social resources embedded in relationships. Cousins et al. (2006) assess the level of relational or social capital (terms used interchangeably) by the degree of mutual respect, trust, and close interaction that exists between the partner firms. Gulati and Kletter (2005) define relational capital as the value of a company's network of relationships with its customers, suppliers, alliance partners, and internal sub-units. According to Krause et al. (2007), Lawson et al. (2008) and Cousins et al. (2006), relational capital is the cumulative trust, experience and knowledge that is created in a relationship. Relational capital has also been defined as one dimension of social capital (Nahapiet and Ghosal, 1998) focusing on trust and trustworthiness.

Social capital can be defined as the aggregate of resources embedded within, available through and derived from the network of relationships (cf. Nahapiet and Ghoshal, 1998; Inkpen and Tsang, 2005; Carey et al., 2011). The central proposition in this view is that networks of relationships are a valuable resource for network members, providing them with collectively-owned capital. Social capital comprises both the network and the assets that may be mobilized through the network (cf. Burt, 1992). Social capital is owned jointly by the parties in a relationship and although it has value in use, social capital cannot be traded easily (Nahapiet and Ghoshal, 1998).

Social capital has also been defined as the competitiveness derived from a network position. Networks tend to be clustered with single ties linking clusters to each other and companies in the position of being the only link between clusters are said to have a structural hole in their network. According to Granovetter (1973), a structural hole is defined as a line in a network that provides the only path between two groups. According to Burt (1992), a company's position in a network may be seen as valuable either because of the access to resources or because of the structure of the network. The network as a source of competitiveness due to the access to resources is related to RBV and TCE. A network structure as a source of competitiveness is understood to be social capital. The two network positions that have gained special attention in social capital literature, the structural hole and closure, differ in terms of the redundancy of their contacts. Figure 2.3 illustrates these two network positions, the structural hole and structural closure.

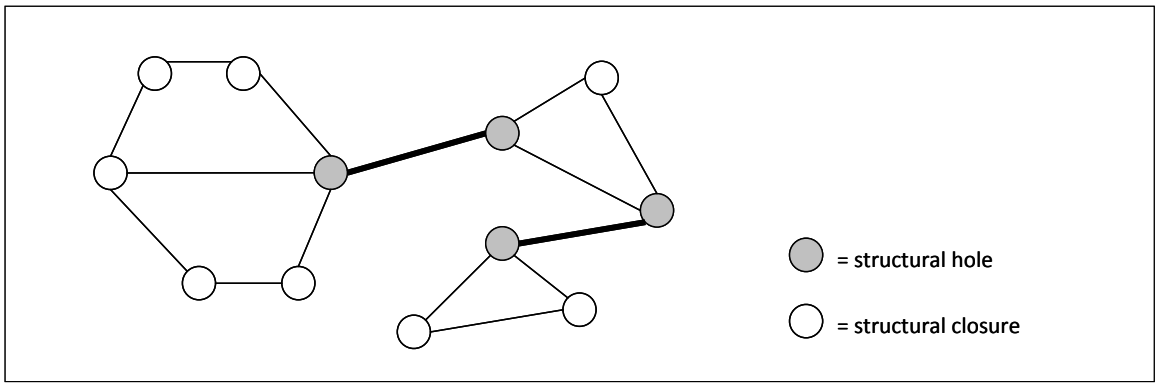

Figure 2.3 Structural hole and closure (modified from Vuori, 2012)

In Figure 2.3 there are two links (the bolded lines between grey units) that are the only connections between two clusters. Parties (grey circles) in those connections are said to be structural holes. White circles have no connections that are the only route to another party (cluster). They are considered to be in positions of closure. Closure is a position where contacts are redundant.

Social capital can roughly be understood as the goodwill that others have towards us (Adler and Kwon, 2002). The sources of social capital lie in the social structure within which the actor is located. As Adler and Kwon (2002) suggest, social capital is the resource available to actors as the function of their location in the structure of their market, hierarchical and social relations. They also state that social capital complements other forms of capital. Social capital can, for example, improve the efficiency of economic capital by reducing transaction costs, i.e. costs for preparation and enforcement of a contract (Lazerson, 1995). Also, like physical and human capital but unlike financial capital, social capital needs maintenance. Social capital also differs from other forms of capital by being located not in the actors but in their relations with other actors (Coleman, 1988). Thus, social capital can be defined as a function of social structure producing advantage (Coleman, 1990).

SCM scholars have studied how building social capital creates value for companies participating in collaborative relationships (Villena et al., 2011; Krause et al., 2007; Cousins et al., 2006; Cousins and Menguc, 2006a). Among others, these scholars suggest that building social capital between buyers and suppliers allows them to gain access and leverage the resources embedded in their relationships. They also highlight the fact that social capital reduces the likelihood of conflicts and promotes collaboration because of its association with shared objectives, trusting relations, and social ties.

As discussed above, the role of relations is essential in SCI. Also, as stated previously, social capital can be seen as "relational glue" in supply chain relationships and a focal antecedent for collaboration. Burt (1992) and Loury (1977) have conceptualized social capital as a set of social resources embedded in relationships. A broader definition includes not only social relationships but also the norms and values associated with them (Coleman, 1990; Putnam, 1995). Nahapiet and Ghoshal (1997) identify three dimensions of social capital: 1) structural capital, meaning social interaction ties such as information and knowledge sharing; 2) relational capital, standing for trust and trustworthiness as well as resources that are rooted in relationships; and 3) cognitive capital, meaning a shared vision facilitating a common understanding of collective goals and proper ways of acting in a social system.

According to Krause et al. (2007) and Lawson et al. (2008), building social capital is important for achieving benefits in an inter-organizational relationship. Social capital resides in relationships and relationships are created through exchange (Bourdieu, 1986). Frequent inter-organizational interactions between parties on different hierarchical levels promote the sharing of information, leading to faster problem resolution and synchronized inter-firm processes. Frequent inter-organizational interactions also create close ties that incentivize the exchange of sensitive information and the formulation of common strategies that lead to strategic benefits, for example the

creation of new markets. (Dyer and Nobeoka, 2000; Heide and Miner, 1992; Uzzi, 1997; Lawson et al., 2008 in Villena et al., 2011)

In this study, the following definitions are used:

Social capital equals the social resources (relational aspects) embedded in social relationships. Relational capital is one part of social capital.

The term relational competence or relational skill is used to emphasize the capability to utilize social capital in managing relations.

A business relationship is the process in which companies develop ties over time to lower costs, to increase value, and to achieve mutual benefits.

Cousins et al. (2006) emphasize the fact that integration or supply chain collaboration requires the dyadic involvement of the parties. For example, if the integrating participants do not have a common direction and set of goals then each participant could potentially end up with strategies that are in conflict with those of other participants of the chain (Barber, 2008). The objectives may concern factors related to issues like time, costs, and quality. As Villena et al. (2011) put it, committed parties have a deeper understanding of why the relationship exists and how they can contribute to the achievement of compatible goals. Thus, goal conformity not only reduces the likelihood of conflicts but also improves the joint returns for both parties. Next, the dimensions of social capital are discussed in more detail.

2.4.1 Cognitive dimension of social capital

The cognitive dimension of social capital (cognitive capital) refers to shared goals, understanding, visions and values between actors in social systems, facilitating the development of common understanding. As stated by Nahapiet and Ghoshal (1998), the cognitive dimension represents the resources providing shared meaning and understanding between the network members. Shared goals describe the degree to which network members share a common understanding and approach to the achievement of network tasks and outcomes (Inkpen and Tsang, 2005). When entering a network, companies might have different goals in mind but negotiations help them arrive at goals that are acceptable to most, if not all, network partners.

Instead of shared goals and understandings, Inkpen and Tsang (2005) mention shared culture, referring to the degree to which norms of behavior govern relationships. Sometimes these norms of behavior are written in formal contracts but most often they

are simply understandings that evolve within the dyad and the network (Gulati et al., 2000).

A shared vision can be seen as a bonding mechanism that helps different parts of a network integrate knowledge. According to Inkpen and Tsang (2005), when a shared vision is present in the network, members have similar perceptions as to how they should interact with each other. This can lead to mutual understanding and exchanges of ideas and resources. Das and Teng (1998) believe that when the objectives and strategies are clearly stated, a basis of common understanding and the means (e.g. shared vision) to achieve the collaborative purpose is established among the actors.

2.4.2 Structural dimension of social capital

The structural dimension of social capital (structural capital) involves the patterns of relationships between actors and is defined as "the configuration of linkages between people or units". Structural capital refers to network characteristics, information and knowledge sharing as well as strength of social interactions. (Nahapiet and Ghoshal, 1998). As Carey et al. (2011) suggest, structural capital describes the extent to which actors are linked in a relationship, for example through organized social events and team building, thus enabling the reciprocal evaluation of trustworthiness and commitment. In their research focusing on social capital dimensions of networks affecting the knowledge transfer between network members, Inkpen and Tsang (2005) state that structural capital involves the pattern of relationship between the network actors and can be analyzed from the perspective of network ties, network configuration, and network stability.

According to Inkpen and Tsang (2005), network ties deal with the ways actors are related. The ties are fundamental from the social capital viewpoint as an actor's network of social ties creates opportunities for social capital transactions (Adler and Kwon, 2002). For example, to promote knowledge transfer, strong ties between the partners are necessary (Inkpen and Dinur, 1998).

Breite and Koskinen (2010) in their study visualize how knowledge sharing should be a continuous process (Figure 2.4). They suggest a spiral where the nature of the relationship, the form of perceived value, and the media used in knowledge transfer in SCM are connected.

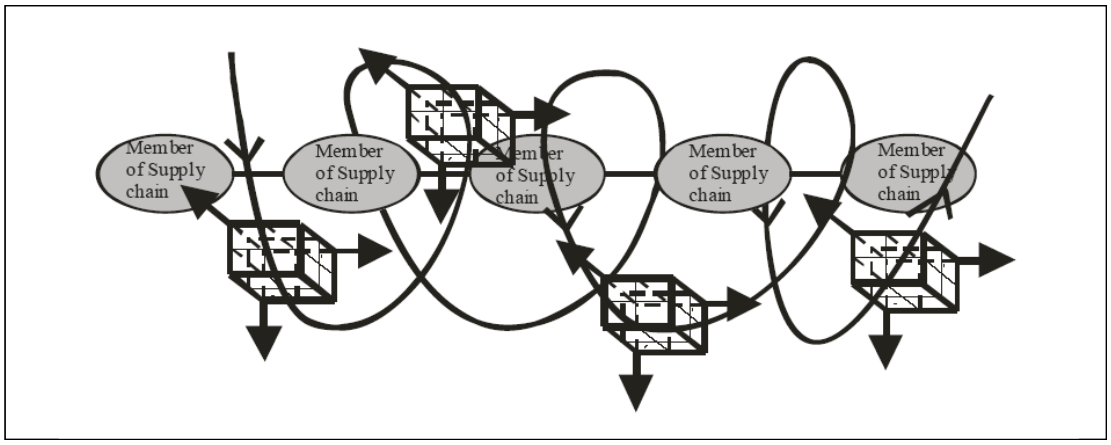

Figure 2.4 Congruent spiral and supply chain management (Breite and Koskinen, 2010)

The relationship between two companies produces different communication situations where the role of differences in interpretations of received data and forwarded knowledge varies. This implies the need for different knowledge communication media in different SCM situations. As a result, Breite and Koskinen (2010) suggest that the medium of knowledge communication varies when the relationship is developed according to the congruent spiral. The spiral illustrates a dyadic relationship with interaction between the parties as a continuous process. The direction in the spiral is upward if the parties understand that congruent integration is not formed linearly but instead, takes time and can also be decreased. As the supply chain can be separated into flows of information, material and money, at the level of the supply chain the knowledge spiral twines around information flow and should cover the whole supply chain as in Figure 2.4. (Breite and Koskinen, 2010)

The formation of a network structure determines the patterns of linkages between network members. The flexibility and ease of knowledge exchange are affected by hierarchy, density, and connectivity because they influence the extent of contact as well as the accessibility between network members (Krackhardt, 1992). Network stability is defined as a change of membership in a network (Inkpen and Tsang, 2005). In an unstable network, the opportunities for the creation of social capital are limited because when an actor leaves the network, ties disappear. Individuals leaving a network take with them knowledge that might be crucial for organizational success. Retaining personnel within a network helps individuals develop long-lasting interpersonal relations. Also, the ability to learn from the partner company strengthens the bargaining power and alliance stability. (Inkpen and Tsang, 2005)

2.4.3 Relational dimension of social capital

According to Nahapiet and Ghoshal (1998), the relational dimension (relational capital) refers to the trust, friendship, respect, and reciprocity present in personal relationships indicating the strength of a relationship built over time. In the same vein, Cousins et al. (2006) assess the level of relational capital by the degree of mutual respect, trust and close interaction that exist between partner firms. As Villena et al. (2011) argue, relational capital helps improve performance within relationships. Johnston et al. (2004), Kale et al. (2000) and Zaheer et al. (1998) suggest that trust, friendship, respect, and reciprocity are essential requirements for supply chain collaboration as they contribute to reducing monitoring costs and increasing willingness to cooperate beyond contractual terms. Trust plays a key role in the willingness of network actors to share knowledge (Inkpen and Tsang, 2005) as relationships based on trust and reciprocity are likely to promote the transfer of knowledge and resources. Also, as Dyer and Singh (1998) state, when the relationships between network members are embedded with trust, companies are more willing to share valuable knowledge and accept the risk of knowledge leakage to competitors.

Studies have shown the benefits of relational capital in terms of improved costs, flexibility, productivity, quality, and innovation (Cousins et al., 2006; Dyer and Chu, 2003; Lawson et al., 2008; Zaheer et al., 1998 and Capaldo, 2007). Trust can be seen as process-based, meaning that companies first test each other's sincerity by moving from small and non-risky deals to more open-ended deals with larger risks (Inkpen and Tsang, 2005). Villena et al. (2011) conclude that relational capital increases the willingness of supply chain partners to take additional risks and assume higher investments in achieving improved operational and strategic benefits.

Dodgson (1993) defined trust as a state of mind, an expectation held by one trading partner about another that the other will behave in a predictable and mutually acceptable manner. It has been argued that trust is so important to relational exchange that it is a central feature of a strategic partnership (Mohr and Spekman, 1994). According to Kamann et al. (2006), trust has a meaning of "lack of opportunism", "good faith", or "willingness to share more strategic information". As Wicks et al. (1999) put it, trust serves as an additional safeguard against opportunism, results in a higher capacity for collaboration, adaptation and commitment, and leads to better coordination, which will result in improved financial performance. However, as argued by Ketchen and Hult (2007), within traditional supply chains the short-term transaction costs are the primary concern creating the potential for opportunism among supply chain participants. In this context, trust between supply chain partners is often difficult to establish and maintain.

According to Rousseau et al. (1998), there are three basic forms of trust: calculus-based, relational, and institution-based trust. In calculus-based trust, individuals are regarded as

motivated primarily by economic self-interest and calculus-based trust is often founded on the existence of economic incentives for co-operation or contractual sanctions for breach of trust. Calculus-based trust relies on mediators such as references, certificates, and diplomas. Relational trust arises between individuals who repeatedly interact over time. Institution-based trust relies on legal systems and societal norms. Zaghloul and Hartman (2003) and Hartman (2003) identified three bases of trust in construction projects: competence trust, integrity trust, and intuitive trust. Competence trust is based on the perception of the ability of others to perform the required work. Integrity trust (or ethical trust) is based on the perception of others' willingness to protect the interest of their counterparts over the construction project. Intuitive trust (or emotional trust) is founded upon the party's prejudice, bias, or other personal feelings towards their counterparts.

In collaboration processes, individuals or organizations create relationships characterized by trust and commitment (Dietrich et al., 2010). As Villena et al. (2011) state, trust is one of the key aspects of relational capital helping to reduce opportunistic behavior (e.g. monitoring) and facilitating cooperative behavior. According to Morgan and Hunt (1994), trust is a key mediating factor in relationship management and its inclusion could help in understanding the relationship development process.

Bagchi and Skjoett-Larsen (2002) state that generating trust is easier among partners in an integrated supply chain. Trust can be defined in the activities that are inherent in high-trust relationships such as communication, informal agreement, absence of surveillance, and task-coordination (Curall and Judge, 1995). Trust should promote collaboration and decision realignment, reduce irrational behavior and "second guessing" among supply chain members, thereby reducing the need for safety stocks. However, trust is not simply an input to a relationship, as Johnston et al. (2004) put it. Instead, it is both a pre-condition and an outcome of relationship development. Trust may arise from frequent face-to-face contact, sharing of vital information, and exposure of opportunistic behavior. In other words, cooperative arrangements lead to successful intentions that build trust, but most firms would not undertake these activities without a sufficient initial level of trust.

According to Autry and Golicic (2010), relational capital can be seen as the relational glue in supply chain relations. They present a buyer-supplier relationship-performance spiral, which suggests the relationship between relationship strength and level of performance. According to their model (see Figure 2.5), relationship strength influences performance and then higher performance increases the strength of the relationship.

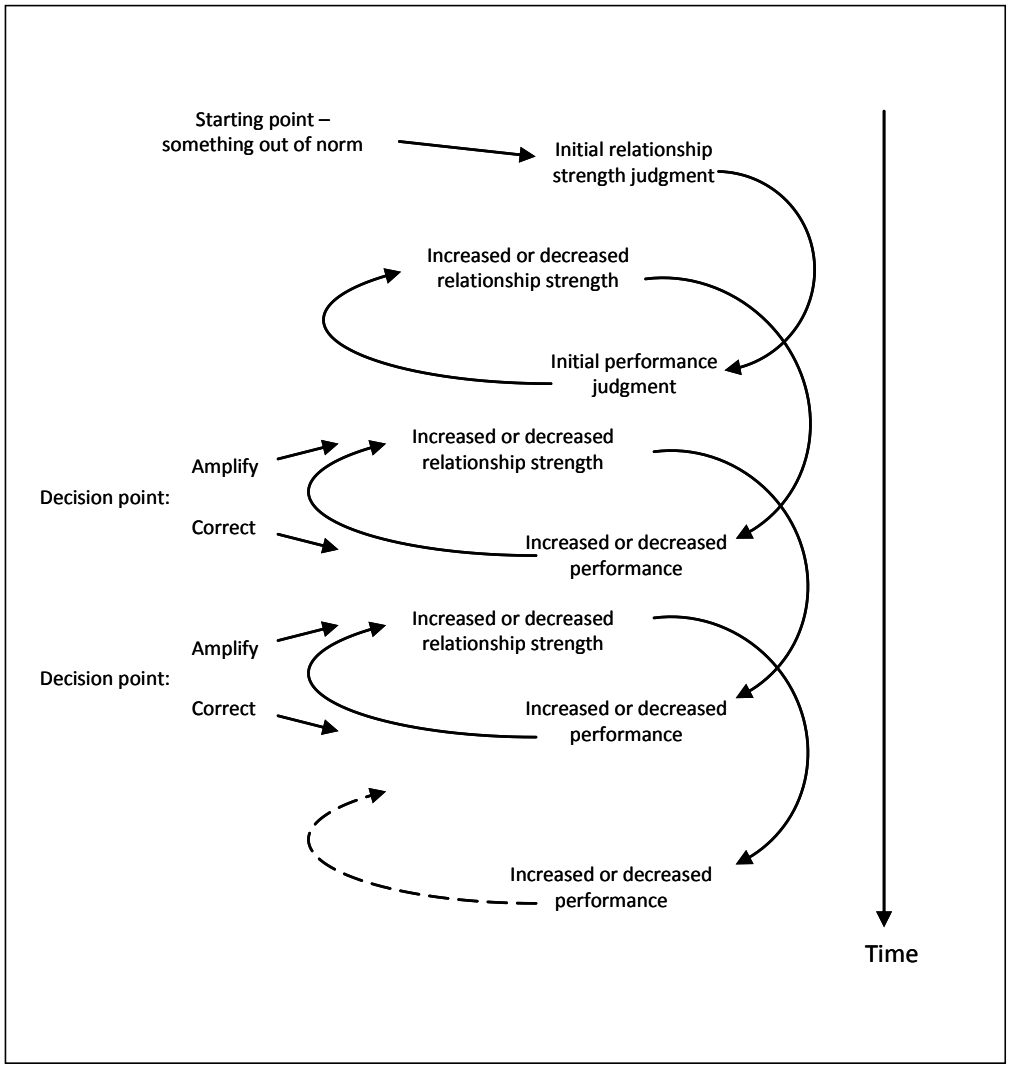

Figure 2.5 Relationship strength-performance spiral (Autry and Golicic, 2010)

As mentioned above, trust between the members of the supply chain brings about integration. Trust is based on expectations, which, in turn, are based on a perception of the motives and abilities of the person to be trusted. For example in marketing, the ability to achieve promised outcomes has been consistently suggested as crucial for the development of trust (cf. Rotter, 1971; Huemer, 1998). Understanding is the basis of trust, helping people to comprehend their partners' behavior, state of mind, and motives. The development of relationships directs the process. When a feeling of trust is established, it affects the perceptions of a partner's commitment more than behavior does. Trust in relation to the organizational mindset and collective action is an important issue because it ties together a complex and attentive system which forms the collective mindset required for reliable performance. According to Weick and Roberts (1993), co-operation is imperative for the development of the mindset, and trust is imperative for co-operation. Interpersonal skills enable people to represent and subordinate themselves to organizations. This means that trust without a behavioral content is a non-complete

trust (e.g. Lewis and Weigert, 1985; Moorman et al., 1993). According to Nonaka and Takeuchi (1995), building trust requires the use of face-to-face dialogue that provides reassurance about points of doubt and leads to willingness to respect the sincerity of others.

2.4.4 Social capital – the sum of its dimensions

Social capital should be handled as the sum of its dimensions since the elements of social capital are interlinked and are hard to separate. For example, trust plays a key role in the willingness of network actors to share knowledge (Inkpen and Tsang, 2005) and increased knowledge sharing for its part increases reciprocal trust. Thus, trust cannot be seen as a simple input to a relationship but instead, as both a precondition and an outcome of relationship development (Johnston et al., 2004).

The reciprocal connection between social capital dimensions has been presented for example by Carey et al. (2011) and Tsai and Ghoshal (1998). Figure 2.6 shows the interrelation between the three dimensions of social capital and their role as the elements of relational competence or relational skills further manifested in enhanced economic and market performance.

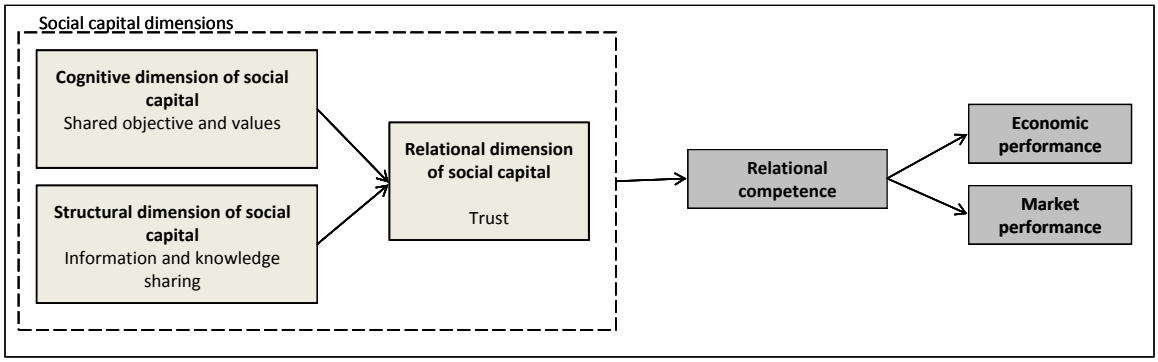

Figure 2.6 Interrelations between social capital dimensions (modified from Carey et al., 2011)

In their study, Tsai and Ghoshal (1998) also link the structural, cognitive, and relational dimensions of social capital and show how they interact within an organization (Figure 2.7). They provide empirical support for Nahapiet and Ghoshal´s (1997) framework relating social capital to value creation (e.g. product innovations) in organizations.

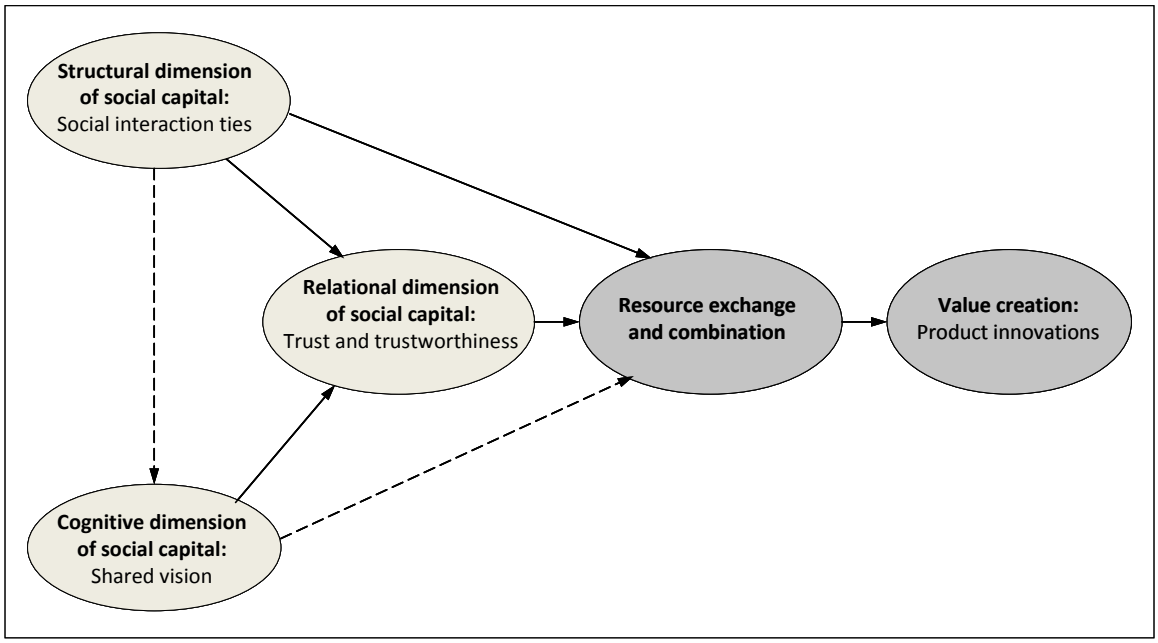

Figure 2.7 Model of social capital and value creation (Tsai and Ghosal, 1998)

According to Tsai and Ghoshal (1998), the structural dimension of social capital (social interaction ties) stimulates trust and perceived trustworthiness (solid line in Figure 2.7), which represent the relational dimension of social capital. Frequent and close social interactions allow actors to get to know each other, to share important information and to create a common viewpoint. In other words, trusting relationships evolve from social interactions (cf. Granovetter, 1995). Tsai and Ghoshal (1998) also state that common values and a shared view, which represent the cognitive dimension of social capital, encourage the development of a trusting relationship (solid line in Figure 2.7). Moreover, social interaction plays a critical role both in shaping common goals and values and in sharing these goals and values among actors (solid line in Figure 2.7) (Tsai and Ghoshal, 1998).

We can conclude that the elements of social capital should be examined together. They cannot be separated and, for example, discussing whether trust or communication comes first would mean solving an "egg vs. chicken" dilemma, which is not the intention of this study.

2.5. Observed gap in the research

Managing network relations is challenging due to the diversity of relations, relational competence per se, as well as utilizing relations in practical network management. These elements are emphasized in a changing environment where companies recurrently evaluate their position in a network. In addition, the development of network relations is not self-evident, business environments are not settled, and thus the preconditions for network integration are insufficient. Typical such unsettled environments are project

networks where development and disintegration of networks depend on single projects. In a new project, companies should be able to detect the antecedents and anticipated benefits of collaboration as soon as possible and be able to recognize partner companies worthy of integration endeavors.

To summarize the theoretical examination earlier in this chapter, it can be concluded that a new kind of approach is required to manage relations in non-established dynamic environments such as project business networks (cf. Segerstedt and Olofsson, 2010). This is because in a project context too, the ability to manage relations is the basis for network competitiveness. Also, managing supply chain relations is recognized as the area requiring the greatest work. The "soft" and complex elements of collaboration need more attention (cf. Barrat, 2004: Shub and Stonebraker, 2009) and focus on the relational aspects of SCM together with network level analysis is called for (cf. Giunipero et al., 2008). Furthermore, studies concentrating on complex buyer-supplier relationship issues such as trust, mutuality, information exchange, openness, and communication are required. As SCI is commonly known as a means to reduce transaction costs through building and managing long-term relations in order to gain direct or indirect performance benefits especially in sequential ("established") manufacturing processes, the potential of managing relations should not be forgotten in the project context either, as projects may last for a long time or include repetitive processes, assignments, and relationships. Furthermore, the increase in industrialization includes shifting activities from the site to in-house production facilities, which increases the likelihood of long-term or recurrent relationships in the project context as well.

We can thus argue that the capability to utilize social capital in managing relations, i.e. the relational competence of network companies, has not yet been thoroughly studied especially in the project business context. It should be, however, as the competitiveness of a network depends on its companies' ability to manage relations (Mesquita et al., 2008; Bleeke et al., 1993). Managing relations (collaboration) is important in the project context also with recurring relationships, long-term relations, manufacturing-like production, specialization, and the required adoption of operational means and culture.

Based on the above observations, it is suggested that companies could be classified based on their relational competence and the business impacts of the relationships. Relational aspects of collaboration (i.e. social capital elements) have not been the focus of categorization earlier, nor has there been much emphasis on the project environment. (cf. Giunipero et al., 2008; Segerstedt and Olofsson, 2010) Instead, categorization has been based on, for example, risk, costs, dependence, and certainty (Kraljic, 1983; Cousins et al., 2008b). Also, studies on SCI (collaboration) and managing relations have thus far concentrated mainly on long-term, continuous relationships in automotive and

other manufacturing-like industries. This means that there has been a limited amount of research on collaboration in small and medium-sized companies in the project business industry. The sector therefore offers a new empirical context in which to conduct research on the relational competence of network companies.

3 THE THEORETICAL FRAMEWORK

The theoretical framework describes how the phenomenon in focus is to be approached thus guiding the progress of empirical research. In other words, a framework is a theoretical answer to the research question and a mental structure guiding the empirical work. (Uusitalo, 1991). The theory is to help in solving the recognized research problem.

This chapter introduces the theoretical framework of the present study. The theoretical basis of the study on relationships as value-creating assets among project-oriented network companies rests on the resource based view (RBV) (Peteraf, 1993; Barney, 1991; Lavie, 2006). The theoretical basis of the study on relational skills and value creation through collaboration among project-oriented network companies rests on the social exchange theory (SET) (e.g. Blau, 1964; Homans, 1958). Furthermore, the theory of transaction cost economics (TCE) (e.g. Coase, 1937; Williamson, 1975, 1981 and 2008) is relevant in the context of managing supply chains as well as the analysis of network relations. In the following sections, these theoretical approaches are discussed in more detail to show the linkage of "traditional" SCM theories, RBV and TCE, to inter-organizational relations and viewing relational skills and to show how SET widens the view towards relational competence. Finally, the theoretical foundation and the linkage of research questions with the main concepts are presented.

According to Granovetter (1985), behavior and decisions in buyer-supplier relationships are not driven by economic actions alone but also strongly embedded in social relations. TCE focuses more on explaining the economic drivers in behavior (focusing on the ways to lower costs) while SET highlights social relations and creating value through them, thus adding depth of understanding to inter-organizational relations. This study combines the three theoretical approaches with the aim of building an extensive theoretical foundation by adding the views of TCE and RBV to the SET approach to obtain tools adequate for studying the value potential of network relations in the project context. Next, RBV, TCE, and SET are discussed in more detail.

3.1 Focus on external relations – extended RBV

3.1.1 Traditional view of RBV

Traditionally, the proponents of the resource-based view (RBV) explain that competitiveness arises from valuable company-level resources and capabilities that are

costly to imitate, create value in the marketplace, and are unique (Barney, 1991; Medcof, 2001). It is also agreed that value and uniqueness are the basis for strategic importance. According to Barney (1991), the value of a resource depends upon its efficiency and effectiveness. He also states that the uniqueness derives from being rare, having imperfect imitability, and being non-substitutable. Traditional RBV focuses on how individual companies generate competitiveness and supernormal returns based on the resources, assets, and capabilities that are housed within the company.

Rooted in the ideas of Penrose (1959), RBV initially adopted an inward-looking view. Despite the diverse definitions, RBV's basic assumption of ownership and control is embedded in most resource definitions. The term resource means anything which could be thought of as a strength or weakness of a given company. Wernerfelt (1984) defines resources as "tangible and intangible assets which are tied semi-permanently to the company". Barney (1991) classifies resources as "all assets, capabilities, organizational processes, company attributes, information, knowledge, etc. controlled by the company that enable the company to conceive of and implement strategies that improve its efficiency and effectiveness". Amit and Schoemaker (1993) define resources as "stocks of available factors that are owned or controlled by the company". Thus, as Lavie (2006) puts it, in conventional RBV studies scholars have assumed that value-creating resources are owned and controlled by the focal company (cf. Amit and Schoemaker, 1993; Barney, 1991). Moreover, researchers have assumed that the only type of association between extra-company resources and company-level performance is competitive in nature.

The resource-based approach bases the securing of competitiveness on two concepts: resources and capabilities. According to RBV, organizations can derive sustainable competitive advantage by acquiring or developing infrastructural resources and knowledge-based capabilities that create value in the marketplace and are not easily replicated by their competitors. (Amit and Shoemaker, 1993; Barney, 1991; Peteraf, 1993; Wernerfelt, 1984) Resources and capabilities are relevant to this study because of their significant role in collaboration and value adding. It is, however, important to notice that the capability to integrate is not seen as a single resource. Instead it is seen as the ability to use network resources.

3.1.2 Extended view of RBV

Since research on business networks increased its significance and visibility at the beginning of 1990s, RBV also began to look outside the boundary of a single company and the concept of dynamic capabilities became an addition to the RBV approach. As Brito and Roseira (2007) state, specialization causes inter-company borders to become

blurred and companies should also consider the resources they access through the network. Networking is, as Jarillo (1988) suggests, the method management uses to access external resources, necessary in the pursuit of opportunities. Furthermore, as relational view scholars explain, competitiveness arises not from company but inter-company sources of advantage (Dyer and Singh, 1998; Lavie, 2006). According to the relational perspective, rents, meaning relation-specific assets, knowledge-sharing routines, complementary resources and capabilities as well as effective governance, are jointly generated and owned by partnering companies. In other words, relational rents, standing for common benefits that increase through combination, exchange, and co-development of particular resources between partners, are the property of the dyad or network. Thus, a company in isolation irrespective of its resources and capabilities cannot enjoy these rents. However, a relational capability is not a sufficient condition for realizing relational rents. Companies use relationships to create value (Kim, 2009; Peteraf, 1993; Barney, 1991; Lavie, 2006). Value created in a dyad or network relationship cannot be created by either company independently but instead, both parties are needed. (Dyer and Singh, 1998)

Lavie (2006) argues that the ownership or control of resources seems not to be a necessary condition for competitiveness. This means that the fundamental assumption of RBV is insufficient. The relational view suggested by Dyer and Singh (1998) complements traditional RBV by arguing that critical resources may span company boundaries enabling competitiveness to arise not from company but inter-company sources of advantage. The relational view, with the basic idea that companies in collaboration gain benefits that are not possible on one's own, draws from both RBV and TCE, emphasizing the common benefits that partners cannot generate independently (Lavie, 2006). Thus, alliance partners play a significant role in shaping the resource-based competitive advantage of the company.

Both transaction cost economics and the resource based view share a concern about the characteristics of a company's internal elements but in TCE the focus is on minimizing the costs involved in inter-company transactions. This kind of view has, according to Das and Teng (2000), been criticized for paying exclusive attention to cost minimization and neglecting value creation. In contrast, the extended approach of RBV suggests that the rationale for partnerships and collaboration is the value-creation potential of company resources that are pooled together. Also, SCM recognizes that resources can be both internal and external to the organization. Resources must be available to the organization, not necessarily owned by the organization. (Hunt and Davies, 2008)

RBV examines how certain assets and capabilities lay the foundation for competitiveness and superior performance (Barney, 1991). The basic approach of RBV

looks at the firm as a bundle of resources and relationships while the traditional approach to supply chains contends that unique resources are situated within firms. Integrated supply chains are based on the assumption that unique resources exist at the supply chain level and that supply chains can be inimitable competitive weapons. (cf. Ketchen and Hult, 2007) In other words, the extended view of RBV suggests that the rationale for SCI is the value creation potential of company resources that are pooled together. RBV seems particularly appropriate for examining supply chain or network relations because companies essentially use relationships to gain access to the other companies' valuable resources. In contrast to the transaction cost logic, which emphasizes cost minimization, RBV emphasizes the value maximization of a company through pooling and utilizing valuable resources (Das and Teng, 2000). To follow the logic of Das and Teng (2000), SCI is about creating the most value out of one's existing resources by combining these with the beneficial resources of others. In other words, RBV can be extended to include network level resources.

The extended RBV approach is also seen in the concept of the unit of analysis. According to the traditional view, companies will achieve competitive advantage over competing firms with the ability to accumulate resources and capabilities that are rare, valuable, non-substitutable and difficult to imitate (known as VRIN resources). Thus, traditional RBV theory views companies as the primary unit of analysis. (Dyer and Singh, 1998) This view, however, overlooks the fact that the (dis)advantages of a company are often linked to the (dis)advantages of the network of relationships in which the company is embedded. As Dyer and Singh (1998) suggest, a company's critical resources may span company boundaries and may be embedded in inter-company resources and routines. In addition, they argue that an increasingly important unit of analysis for understanding competitive advantage is the relationship between companies. Nohria (1992) states that from the perspective of (extended) RBV, an important source for value creation lies in a network of relations.

3.1.3 Suitability of RBV for viewing relational aspects of collaboration

As Lavie (2006) states, social network theories have been applied to the studies of inter-organizational relations, viewing these relations as a significant element in organizational environments. These theories criticize theories that seek to explain company strategies and performance solely on the basis of one-sided profit-seeking behavior in a resource-based or competition-oriented environment (Granovetter, 1985; Gulati, 1995; Nohria, 1992). Instead, social network researchers focus on analyzing inter-company relationship structures and examine the impact of network level cooperation, communication and learning on a company's actions and performance

(Lavie, 2006). Both the relational view and social network theories offer an important stimulus for the extended RBV approach.

The extended RBV approach is adopted in this study and network relations are considered focal in enhancing SCM, both in decreasing costs and increasing value. Value is created in a network and not by single company (Lakemond et al., 2004). In addition, value is created through combining the unique resources and capabilities of network actors. Therefore, when analyzing the significance of collaborative relations, RBV is a suitable theoretical basis for the study. However, as López (2005) argues, RBV is not enough, as it does not adequately explain the process via which some companies reach competitiveness in dynamic markets or in situations of change whereas others do not. While collaborative networks can create new and unique value propositions by complementing, integrating, and leveraging each other's capabilities and competencies, SCI still remains at operational level and does not achieve the level of strategic collaboration and synergy along the supply chain or network (Bititci et al., 2004). Lavie (2006) states that theories such as RBV cannot explain how companies gain competitiveness in an environment where companies maintain frequent and multiple collaborative relationships with partner organizations. Thus, in order to analyze network relations in the project business context, a broader and less static theoretical approach is needed.

3.2 Focus on economic drivers in behavior – TCE viewpoint

3.2.1 The essence of TCE

Next, a perspective offering a sound theoretical framework for studying supply chain partnerships is examined. The origins of transaction cost economics (TCE) derive from the work of Coase (1973), where he discusses the existence of organizations and markets. He believes that the main reason for profitably establishing a company would be the existence of costs using the price mechanism. These costs are called transaction costs and the idea is to find a governance structure with the lowest transaction costs, i.e. costs of running the system. Williamson (1985 and 1986) also classifies transaction costs as ex ante, e.g. negotiation and writing up, and ex post, e.g. executing the actual contract and settling possible disputes.

TCE provides an explanation for the motivation to form business relationships. TCE offers a natural fit with SCM research because it focuses on the make-or-buy decision, that is, whether a company should make a product itself or purchase it from an outside provider (Williamson, 1975). TCE proposes that organizations need to consider the costs of a transaction. Costs of searching for information, bargaining costs, and the costs of policing and enforcing contracts need to be considered to decide what is more cost-

effective: sourcing from the open market or conducting the activity within the company. The general goal is to maximize performance by minimizing transaction costs within and between organizations. Transaction costs are the expenses generated by identifying fair market prices, negotiating and performing economic exchange (Williamson, 1991). To be precise, transaction costs can be broken down into four separate costs related to transacting: 1) search costs, including the costs of gathering information to identify and evaluate potential trading partners; 2) contracting costs, referring to the costs associated with negotiating and writing an agreement; 3) monitoring costs, referring to the costs associated with monitoring the agreement; and 4) enforcement costs, referring to the costs associated with bargaining and sanctioning a trading partner who does not perform according to the agreement (Dyer, 1997; Williamson, 1975). Networking (collaboration in a network) is a way to decrease these costs.

A central premise of transaction cost theory (TCT) is that transaction costs increase as transactors make greater asset-specific investments (i.e. non-redeployable physical and human investments that are specialized and unique to a task). In other words, transaction costs are presumed to increase with an increase in asset specificity (being tied in a two-way or multiple-way business relationship) due to opportunism (Williamson, 1985). However, while studying effective inter-company collaboration and focusing on how companies minimize transaction costs and maximize transaction value, Dyer (1997) suggests that transaction costs do not necessarily increase with an increase in relation-specific investments. In his exploratory study among Japanese and U.S. automakers, Dyer (1997) found that transaction costs differ among automakers due to differences in their commitment to future interaction, differences in the scale and scope of exchanges, differences in inter-company information sharing, differences in the safeguards, i.e. control mechanisms, chosen to govern the exchange, and differences in investments in co-specialized assets. The purpose of safeguards is to provide at minimum cost the control and trust that is necessary for transactors to believe that engaging in the exchange will be beneficial to them (Williamson, 1985). As Dyer (1997) states, contracts are the primary means for safeguarding transactions but also alternative means have been offered. These self-enforcing agreements include informal safeguards such as relational or goodwill trust and reputation, as well as formal safeguards such as financial hostages and specialized investment hostages. Contracts can be used to control opportunism for only a limited time horizon whereas self-enforcing safeguards can control opportunism over an indefinite time horizon.

According to Vijayasarathy (2010) employing the transaction cost approach, supply chain integration can be viewed as a special governance mechanism, whose formation is influenced by asset-specific investments made by supply chain partners, and whose formation leads to reduced costs and uncertainty in addition to improved performance (Das et al., 2006; Rosenzweig et al., 2003). TCE provides a theoretical basis for

decisions concerning buyer-supplier relations and their types. It is applied in this study as a theoretical background in the discussion on the motivation (i.e. benefits and business impacts) to form project business relations.

Even though behavior and decisions in business relationships are driven by economic actions, they are strongly embedded in social relations (Granovetter, 1985). According to Williamson (1998), TCE explains the structure of a company and the extent to which it is integrated towards its suppliers and customers. TCE provides network research with a basic understanding of the costs present in the inter-company cooperation. TCE can partly explain the sources of competitiveness a network company can enjoy. However, relational skills as well as value creation through collaboration are not sufficiently explained by TCE.

3.2.2 Suitability of TCE for viewing relational aspects of collaboration

As Dyer's (1997) model suggests, a company's trustworthiness increases as transactors demonstrate through their behavior a commitment to future interaction, increase the amount of information sharing and employ self-enforcing safeguards (e.g. relational trust and stock ownership) to govern the relationship. In turn, an increase in trustworthiness within the relationship reduces transaction costs and increases the likelihood that transactors will invest in relation-specific assets. In addition, increased investments in specialized assets help to reinforce the company's trustworthiness by increasing the cost of one-sided defection and lengthening the "shadow of the future" (i.e. the possibility to co-operate in the future). Finally, lower transaction costs and greater investments in specialized assets maximize transaction value (i.e. joint performance). Dyer (1997) further suggests that a production network that can simultaneously achieve the twin benefits of asset specialization and lower transaction costs will have efficiency advantages over a less specialized network with higher transaction costs. The fundamental question is how exchange relations can be structured to maximize transaction value, not to economize on transaction costs. Dyer (1997) as well as Corsten and Felde (2005) conclude that efficient governance mechanisms (i.e. trust and other relational constructs) can simultaneously lower transaction costs and increase relation-specific investments, thereby creating competitiveness leading to improved business performance.

According to Williamson (1996), SCI arrangements are acknowledged within "hybrids" or partnerships and relationship building includes investments in specific assets that generate mutual dependence and serve as hostages against opportunism. However, as Maloni and Benton (2000) argue, TCE is not a dynamic theory and it ignores the relational aspects of collaboration, such as trust and commitment. TCE states that doing

business between companies incurs transaction and production costs. One problem associated with TCE is that it ignores organizations that work with each other repeatedly (Zajac and Olsen, 1993; Gulati, 1995) and treats each transaction independently. TCE also assumes that all parties are opportunistic. The emergence of hybrid relations, i.e. strategic alliances and partnerships, does not fit with the TCE framework. The assumption of transaction independence ignores key factors such as trust. However, an evolving long-term perspective identifies trust in collaborative relations as a mediating factor in reducing transaction costs (Handfield and Bechtel, 2004).

Business relationship management can be viewed through transaction cost economics as well as through social exchange theory. Traditional TCE does not consider the inter-connectedness of the commitments of a company (collaborative relations) but focuses on individual companies instead (Argyres and Liebeskind, 1999). As Williamson (1998) states, TCE explains the structure of a single company and the extent to which it is integrated vertically. According to TCE, companies aim at maximizing profits, which typically involves the minimization of costs. In SET the focus is more on building relations than on minimizing costs. There is also a difference between SET and TCE in the governance mechanism, which is based on trust in the SET view and on legal contracts in the TCE approach. In other words, SET explains relationship building by means other than contractual mechanisms. According to Lavie (2006), TCE offers a narrow view of partnerships and emphasizes contractual rather than relational aspects. This theory can be extended by shifting from cost minimization to joint value creation and suggesting inter-company trust as an alternative to formal safeguards that reduce opportunistic behavior (cf. Dyer and Singh, 1998). Thus, the SET approach offers important insights in extending the TCE viewpoint.

3.3 Focus on competitiveness through social relations – SET approach

3.3.1 The essence of SET

Social exchange theory with its origins in anthropology, sociology, social psychology, behavioral psychology, philosophy and economics argues that individuals or organizations interact for reward or with the expectation of a reward from their interaction with others (Griffith et al., 2006). According to SET, a basic motivation for interaction is the seeking of rewards and avoidance of punishments (Emerson, 1976). Thus, the central essence of social exchange theory suggested by Cropanzano and Mitchell (2005) is that “social exchange comprises actions contingent on the rewarding reactions of others, which over time provide for mutually and rewarding transactions

and relationships". SET focuses on identifying the effects of interdependent actions on social system behavior. Social exchange differs from economic exchange in several ways. The most fundamental difference is that social exchange is based on unspecific duties whereas in economic exchange a formal contract specifies the exact amount of exchange. In social exchange the obligations are not specified and it relies solely on the general assumption that when one person does another a favor, some future reward will be available. Trust is needed because there is no way to assure an appropriate return for the favor. (Blau, 1964). As Wagner et al. (2011) point out, trust is a relationship success factor and a key SET variable.

The importance of studying the embedded social dimensions of a relationship is emphasized by Krause et al. (2007). They state that, since cooperation and collaboration between buyers and suppliers have increased, the performance of these relationships and the socially embedded dimensions in them ought to be of interest to researchers. Emberson and Storey (2006) also encourage the usage of SET by arguing that greater understanding is needed of human and organizational behavior in collaborative working arrangements in order to manage such relationships successfully. A conceptualized framework capturing some of the key constructs and properties of the buyer-seller relationship suggested by Kern and Willocks (2000) argues that interaction plays an important role in the relationship and that there are several important areas for interaction in addition to the traditional areas of product and financial exchange. The behavioral aspects identified in their framework include commitment, cooperation, expectations, satisfaction, conflict, dependency, power, and trust. These aspects affect the relationship and are difficult to manage by contracts alone, as Nieminen (2011) suggests.

Although SCM is clearly driven by economic actions, it is also strongly embedded in social relations (Granovetter, 1985). As Nieminen (2011) states, in recent years SET has been applied in several studies (cf. Narasimhan et al., 2009; Yang et al., 2008; Muthusamy and White, 2006; Kingshott, 2006; Griffith et al., 2006; Cousins et al., 2006) to gain a better understanding of buyer-supplier relationships and also the drivers behind the actions within them. Griffith et al. (2006) believe that supply chain relations contain both economic and social elements and emphasize the importance of examining the relationship of attitudinal and behavioral SCM constructs within a broader theoretical framework such as SET. Kingshott (2006) argues that current and future expectations and obligations between suppliers and buyers are critical relational building elements that encourage the nurturing of longer-term relationships from the SET perspective. Cousins et al. (2006) focus on the impact of formal and informal socialization processes on the creation of relational capital between buyers and suppliers. On the basis of their study, they suggest that informal socialization processes are important in the creation of relational capital, leading to improved supplier

relationship outcomes in the form of better product and process design as well as improved responsiveness. Muthusamy and White (2006) examine the effect of mutual influence between partners on perceived alliance performance. Their findings support the argument that, in contexts involving high interdependence and uncertainty, relational influence becomes more significant. Yang et al. (2008) focus on the antecedents of relational stability in supply chain alliances and the impact of stability on alliance performance, concluding that both relational commitment and trust in the supplier have positive effects on relational stability thus further affecting positively the alliance performance. In their study the sustainability of a stable and cooperative relationship is emphasized. Narasimhan et al. (2009) use SET to gain better understanding of the relationship between a buyer and a supplier in a situation of lock-in dependence.

Organizational value creation occurs in networks and in cooperation with other organizations. In close collaboration a considerable amount of value is created through actions not directly determined by written or verbal agreement. SET provides a basis for better understanding and explaining this type of value creation. According to Blau (1986), the parties create and exchange value with each other in social exchange, as SET suggests. Social exchange theory is best understood as a framework for explaining the movement of resources between dyads or a network via a social process (Emerson, 1987). SET identifies and explains the behavior of social systems and in order to understand social systems, the actions and interactions of actors such as organizations and people are observed. Based on the behavior of these actors, the system behavior in the buyer-supplier relationship can be explained. Also, as Giunipero et al. (2008) argue, the analogy between social networks and network relations can be used.

3.3.2 SET applied to project-based relations

Managing business relations can be and has been reviewed through TCE, RBV, and SET. The focus in the TCE approach is in maximizing business impacts and lowering costs through economic means and formal contracts. Extended RBV, on the other hand, takes into consideration the utilization of network relations as a common resource whereas SET concentrates on value formation and emphasizes social relations. Thus far, research in the field of SET has been focused on contexts other than projects. However, also in the project context, value is collaboratively created due to specialization, networking, and competition between networks. Even though the context of this study is project business the project business as such has got less notice since the focus here is in the SET view.

The key elements of both TCE and SET are summarized in Table 3.1. SET focuses more on building relationships than on minimizing transaction costs, which is the case in TCE. SET explains relationship building by mechanisms other than contractual and governance in the SET view is based on trust, while in the TCE view it is based on legal contracts. The table is complemented by the RBV with its focus on gaining competitiveness and adding value through key resources enabled by collaborative relationships.

Table 3.1 Different perspectives of relationship management (Modified from Nieminen, 2011 and Kingshott, 2006)

Relational dimension	Social exchange theory (SET)	Transaction cost economics (TCE)	Resource based view (RBV)
Managerial philosophy and focus	Build relationship Focus on inputs	Maximize business impacts, minimize transaction costs Safeguard assets	Gain competitiveness Exploit key (VRIN) resources
Conceptual origins	Sociology	Economics	Economics
Underlying assumptions	Moral obligations between actors Inherent reciprocity Interdependence through socialization	Bounded rationality Individuals act opportunistically Need for uncertainty reduction Risk neutrality	Traditional view: resources must be owned and controlled Extended view: resources must be available
Governance	Trust	Contractual/legal	Traditional view: ownership and control Extended view: availability (trust)
Mechanisms	Relational norms Bilateral inputs required	Hierarchical	Collaborative relationships
Managerial benefits/burdens	Greater flexibility Interactive and adaptive Higher efficiency	More partner control Greater internalized certainty Relational specifications in advance	Added value through common resources Risks of commitment and dependency

According to Young-Ybarra and Wiersema (1999), trust is a common element in SET. They submit that social exchange literature suggests two main sources of trust: one is a result of reputation while the other is the sharing of similar values. Reputation requires knowledge of previous relationships or may develop over time as the interaction between partners continues. Sharing of values requires current knowledge about one's

partner in the exchange involving communication as well as an understanding of the goals and values of the partner. Based on a review of previous studies, Young-Ybarra and Wiersema (1999) conclude that trust develops between partners over time and is intimately tied to past experiences. However, the findings of their study reveal that previous relations and attachments are not significantly related to trust. In other words, the length of time that partner organizations had been together had little or no impact on the trust developed between organizations. On the other hand, both the level and quality of communication as well as the existence of shared values between the partners were significant factors influencing trust – as suggested by SET.

As Kingshott (2006) argues, the TCE approach has limited capacity for explaining the presence and influence of relational aspects such as trust. Specialization and networking cause borders between single companies to become blurred and this emphasizes the need to consider the resources thus accessed (Brito and Roseira, 2007). This extends the traditional view of RBV to an inter-organizational network level. Then, with a grounding in SET, it is possible to show the significance of trust between organizations as well as how trusting behaviors can attract commitment in relationships. Also, with a grounding in SET, it is possible to explain the collaboration based on relational aspects, i.e. to create value (both economic and operational) by using network level resources enabled by collaborative relations.

Value creation in an organization occurs increasingly in networks and in cooperation with other organizations. According to SET, the participants in social exchange create and exchange value with each other (Blau, 1986). This SET-based value creation in business relationships has received more and more attention (Dyer, 1997; Young-Ybarra and Wiersema, 1999; Villena et al., 2011), but very little empirical research has been done on the underlying mechanisms and factors affecting the trust required for SCI, especially in the project context.

Multiple theories need to be integrated in order to address the complex phenomena associated with close supply chain relationships (Poole and Van de Ven 1989; Ketchen and Hult, 2011). Studying the phenomenon of the relational competence of network companies in the project context is a complex SCM phenomenon. Here the phenomenon is explored by building on TCE (Coase, 1937; Williamson, 1975, 1981 and 2008) and RBV (Peteraf, 1993; Barney, 1991; Lavie, 2006), added to the SET (Blau 1964; Homans, 1958) point of view.

3.4 Summary

The focal findings of the theoretical framework discussed in Chapter 3 can be concluded as follows. First, in a dyad or network relationship, value cannot be created by either company independently. Instead, both parties are needed, which highlights the

mutual dependence and significance of a relationship suggested by RBV. Second, partners in a relationship play a significant role in forming the resource-based competitiveness of a company. Third, it is the availability of resources that is important, not their actual ownership. Fourth, RBV can be extended to include network resources, as value is created from the company's own resources combined with the beneficial resources of another. Thus, an important source of value creation lies in a network of relations, as suggested by SET. Fifth, the opportunism assumed by TCE can be controlled by contracts but they can be used for only a limited time. In contrast, relational or goodwill trust and reputation can control opportunism over an indefinite time horizon. Sixth, TCE explains the structure of a company, its motivation to form business relationships and the extent to which it is integrated towards suppliers and customers. The focus in TCE approach is to maximize business impacts, e.g. improve competitive position and increase markets, by lowering costs. However, relational competence and value creation through relational aspects of collaboration do not fit in the TCE framework. Therefore, to analyze network relations in the project business context a broader and less static theoretical approach (see Figure 3.1) is needed.

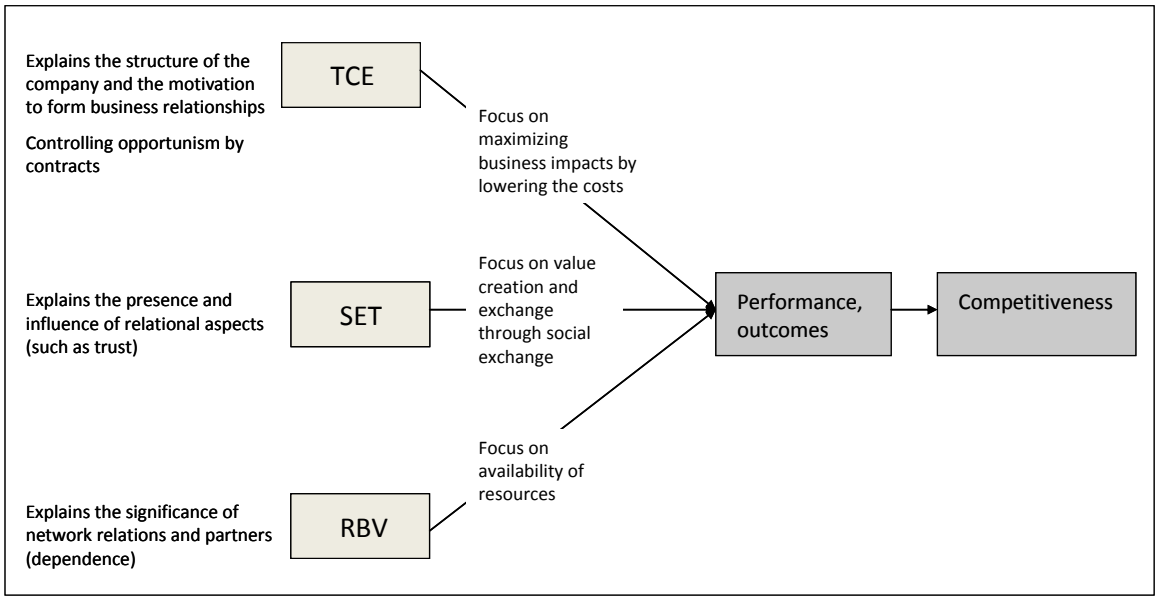

Figure 3.1 Theoretical approach

This study complements the research by bringing SET to bear in SCI analysis. SET, TCE and RBV are utilized in this study in order to create a foundation for the research context of project-based network relations (see Figure 3.2). Separately none of these theoretical views is sufficient but together they offer a means to discuss the management of network relations in the project business context from the social capital viewpoint.

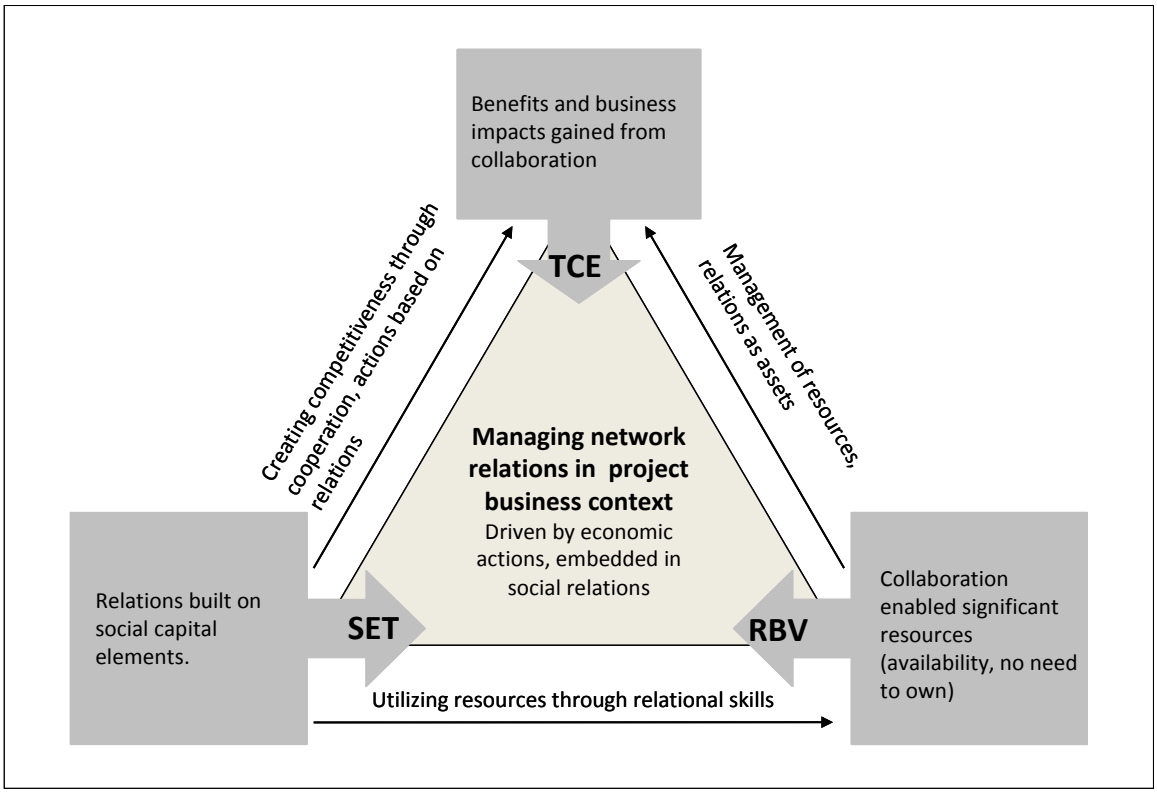

Figure 3.2 Focal issues and related theory basis of the study

Following the argument by Giunipero et al. (2008), the analogy between social networks and network relations is used. According to RBV, both parties of a relationship are needed, as alone it is not possible to achieve the same results as working together. Thus, RBV focuses on the significance of collaboration. An unbeneficial relationship is not worth investing in if the relationship itself is not significant to the collaborating parties. From the viewpoint of TCE, relationships should be of benefit, either in the actions or performance of the collaborating companies. Even when the importance and the benefits of a relationship are known, it is essential to understand the structure and the state of the collaborative relationship to be able to manage the relationship successfully. This calls for a SET-focused approach.

Examining the expression of relational skills, the importance of collaborative relations, and the outcomes of collaboration are the subjects of this thesis. The main research question concerns the classification of business relations based on their relational skills to analyze the competitiveness of a project-based supply network. Relational skills, such as setting common objectives, sharing information and knowledge between partners, as well as mutual trust, are less studied in the project context and thus the study focus is on the way relational skills both present themselves and are manifested in project-oriented network relations. As Figure 3.2 shows, the social capital viewpoint of managing network relations in a project business environment is the research context. The empirical context is the Finnish maritime industry. In Chapter 5, the typology is

developed for competence-impact estimation of collaboration to be applied in the Finnish maritime industry. However, the research method is introduced first.

4 RESEARCH METHODOLOGY

This chapter describes the empirical research context, the grounds for case selection, and the methods of data collection and analysis. It also introduces the tactics used to ensure the quality of the research.

4.1 Research methods

The research was designed to study the phenomenon of the relational aspects of collaboration. The aim was to collect real-world data and information and to extend the managerial theory on project-based network relations. Grounded theory (GT) was chosen as it suites a research associated with complex social relations (cf. Kaufmann and Denk, 2011). In addition, GT is used as a method to ascertain the rigor of a qualitative research (Giunipero et al., 2008). Case study can be applied when the results are about to have impact on real-life organizations (Eisenhardt and Graebner, 2007). Thus, a combination of grounded theory and case study approaches was applied in this study.

Glaser (1992) defines grounded theory as "a general methodology of analysis linked with data collection that uses a systematically applied set of methods to generate an inductive theory about a substantive area". The grounded theory method is actually a set of methods rather than a single method. However, as pointed out by Charmaz and Bryant (2010), it has three features that distinguish it from other methods: 1) theoretical sampling, 2) constant comparison of data and theoretical categories, and 3) focus on the development of theory via the theoretical saturation of categories rather than substantive verifiable findings. According to Mello and Flint (2009), the GT approach is advisable in fields where problems involve complex social interaction or where little formal theory exists. Here, GT helps to gain a more comprehensive and deeper understanding of the phenomenon of interest. In addition, Giunipero et al. (2008) suggest the use of grounded theory as a research methodology to ascertain the rigor of qualitative research.

On the other hand, as Eisenhardt and Graebner (2007) put it, the case study approach is favored as its results can have high impact due to the richness of the data and the real-life organizational settings. According to Lewis (1998) and Voss et al. (2002), in a constantly changing environment, managerial methods and technology call for more field-based research. Seuring (2008) concludes that to enhance the understanding of SCM, empirical research is still much needed and, in this context, the case study method offers some advantages which can not be met well by any other research approach.

According to Kaufmann and Denk (2011), rigorous grounded theory approaches are also beneficial in SCM research, which involves complex social interactions. The subject of this research involves complex social interactions in the form of inter-company integration and collaboration as well as relationship issues in supply networks, thus offering itself as a suitable area for a rigorous grounded theory (GT) approach. In addition, the importance of case based research for logistics management (Ellram, 1996) and SCM (Hilmola et al., 2005; Seuring, 2008) has been highlighted in recent years. As in the GT approach, the case study process has to be conducted in a structured way to ensure the rigor and quality of the research. (Seuring, 2008).

4.1.1 Research process in GT

To assess and increase the quality of the GT approach, an interpretive research structure is to be used (Kaufmann and Denk, 2011). According to Kaufmann and Denk (2011), analytic procedures in GT follow five methodological ideas that differ from other inductive research methods. First, research questions emerge from data, i.e. literature and existing theories, and are not generated from hypotheses. Second, GT allows for any kind of data collection - interviews, secondary data, company reports, or statistics - that fits the study (Goulding, 2001). Third, the data collection process is guided by theoretical sampling, in other words, initial theoretical insights will determine where sampling is next done (Goulding, 2001). The actual research process is an iterative process. That is, data collection, coding and data analysis are done simultaneously (Locke, 1996). Fourth, GT procedures include data coding to achieve an abstraction level that lets a new theory emerge (Glaser and Holton, 2004). Fifth, data collection can be concluded when theoretical saturation is reached (Morse, 1995). Ensuring trustworthiness requires that all stages of the research process should be outlined (Pratt, 2008; Seuring, 2008).

To ensure the rigor of GT research, all the five stages of an inductive research process put forth by Stuart et al. (2002) need to be considered (see Figure 4.1).

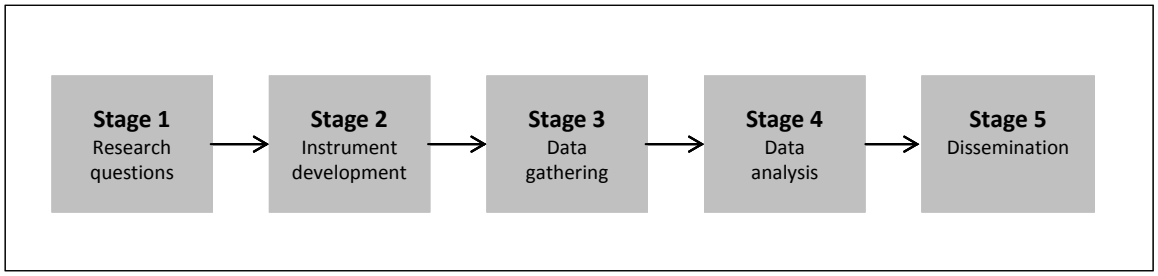

Figure 4.1 Five-stage research process model (Stuart et al., 2002)

In the first stage, the research questions are defined. The research questions are initiated by the phenomenon of interest, which is followed by the identification of a gap in the literature, in this case the relational aspects of collaboration in project-based networks. Hence, literature is viewed as part of the data included in the analysis. (Kaufmann and Denk, 2011)

In the second stage, instrument development, the appropriateness of the selected methodology is shown and a research design is derived that contributes to finding answers to the research questions. Here the intentions of the study must be clearly stated, i.e. whether the GT approach is intended primarily "to explore, to extend theory, or to gain new understanding". (Stuart et al., 2002) In this study, the intention is to gain substantive understanding in a new context. Based on the motive for selecting the GT approach, a suitable measurement instrument for data collection needs to be developed. The intended tool for data analysis purposes, e.g. an interview protocol, needs to be stated too. (Kaufmann and Denk, 2011)

In the third stage, data gathering, it is ensured that the sample is concerned with the phenomenon of interest. In this section, grounded theorists should explain why they chose to proceed with a particular sample. Here, the research topic is found to be relevant to the case network and the case companies are both willing to improve their operations and able to provide relevant empirical data for the purposes of the research. The maritime industry was selected as it is strongly project-related with a well-functioning network named as one of the cluster's strategic goals.

In the fourth stage, data analysis, the qualitative data is interpreted so that theoretical insights emerge. This section ensures that the reader fully understands how the data were interpreted and fragmented to generate a new theory. As Kaufmann and Denk (2011) argue, GT procedures cannot be presented separately from data collection and the analysis process because the methodology "happens" while the theory emerges (Glaser and Holton, 2004). Thus, a specific section labeled "methodology" is not necessary. In this study, an iterative research process (see Figure 4.4) is presented to clarify the course of data analysis.

In the fifth stage, dissemination, the readers should be convinced of the rigor of the inductive work. In this section the applicability of the research findings is addressed in contexts different from the actual research setting. Here it is shown how research findings extend an existing theory or build a new theory. (Kaufmann and Denk, 2011)

4.1.2 Research process in case study

The research process for case studies is similar to that used for GT research, following the five-stage research process proposed by Stuart et al. (2002). The criteria for assessing a case study are shown in Table 4.1.

Table 4.1 Analytic dimensions and related categories for content analysis (Seuring, 2008)

Dimensions	***Categories***
Stage 1: Research question	
Theoretical aim	Exploration, theory building, theory testing, theory extension
Stage 2: Instrument development	
Cases	Number of cases, embedded units, and stages of the supply chain where data was collected
Case selection	Single cases: unique case, representative case, revelatory case, longitudinal case, pilot case for multi-case design
	Multiple cases: unique case, representative case, revelatory case, longitudinal case
Stage 3: Data gathering	
Data gathering techniques	Open interviews, semi-structured interview, structured interview, questionnaire, documents/websites/publications, direct observation, participant observations
Stage 4: Data analysis	
Data analysis	Transcription, use of software, cross-case analysis
Stage 5: Dissemination/overall process	
Case quality	Construct validity, internal validity, external validity, reliability

In stage one, the theoretical aim of the study is stated. In this research the case study is exploratory, aimed at defining the questions of a subsequent study (cf. Yin, 2003). In stage two, the case selection is made. According to Ellram (1996), Carter and Dresner (2001) and Barratt et al. (2011), using multiple cases instead of one in-depth case analysis increases the validity of the research and allows the development of a richer theoretical framework. Here, a multiple case approach is used as it represents replications and either predicts similar results or shows contrasting results among the replications. Applying the multiple case approach means that analytic generalization (as the opposite to statistical generalization used in survey research) is applied in case study research (Yin, 2003; Eisenhardt, 1989). According to Ellram (1996), six to ten cases are enough to either support or reject the initial propositions. In this research, a total of ten interviews (each representing one or more project-based network relations) were carried out. Eight of the interviewed companies were subcontractors and two shipyards. The cases were purposively selected to control variation better and improve generalizability.

The case selection was based on previous research contacts and stated interest in the research (i.e. participation in the ALKU project).

In stage three, the data is gathered. In this study, semi-structured conversational face-to-face interviews and secondary data such as documents/websites/publications were used. In stage four, the data is analyzed using transcription and software. The evolving classification based on the interviews is also reviewed and approved by informants via a feedback questionnaire. In stage five, the rigor (i.e. the quality) of the research at hand is ensured. A focal means to ensure the validity and reliability of the research is to present the research process (Seuring, 2008). Yin (2003) suggests that using multiple sources of evidence enhances the construct validity and reliability of the study. According to Dubois and Araujo (2007), using multiple respondents enables the capture of a variety of perceptions and meanings, which is vital to the understanding of complex business relations such as the relational aspects of network collaboration in the project context. Furthermore, interview bias should be limited by having numerous and highly knowledgeable informants viewing the focal phenomena from diverse perspectives (Eisenhardt and Graebner, 2007). Therefore, several knowledgeable informants in high positions as well as data from different sources were used in this research.

4.1.3 Ensuring validity and reliability of the research

In addition to the five stages of the research process discussed above, the quality criteria of GT research, i.e. credibility, dependability, confirmability, and transferability, need to be present (Kaufmann and Denk, 2011). Credibility can be increased by both seeking the participants' agreement that the investigated phenomenon is relevant for them and visiting extant literature to ensure that the study is warranted. Dependability can be enhanced by evidencing that the study uses multiple sources of data to define the research questions, for example companies of different types, size, and business conditions (Sinkovics, Penz and Ghauri, 2008). Confirmability can be addressed by sending executive summaries of the findings to the participants for review to ensure that what is found in the data is a true reflection of the participants' realities (Fugate et al., 2006; 2008). Transferability reflects the extent to which findings can also be employed in other contexts. According to Stake (2000), a case report does not need to explain the world but to explain just that one case. Thus, the requirement for generalization should not exist. A case study aims at optimizing understanding of the case under study, not generalizing it on the basis of a single case. Stake (2000) concludes that triangulation increases the credibility of a case study but still does not encourage generalization. Rather, it justifies the conclusions made based on the case. As Kaufmann and Denk (2011) submit, it is not the researcher's duty to transfer the findings to other contexts. Nevertheless, a sufficient database to make this transfer possible needs to be provided.

Several tactics have been used in this thesis to ensure the quality of the research. The most commonly used criteria are credibility or construct validity (Yin, 2003), internal validity, external validity, and reliability (Lincoln and Guba, 1985). In Table 4.2, the tactics applied in this study are described, following the classification for GT research by Kaufmann and Denk (2011).

Table 4.2 Tactics used to ensure the rigor of the research

Criteria	Tactics applied in this research	Phase of this research in which tactic occurred
Credibility	Proper and relevant research design was applied	Definition of the research questions
	Significance of the phenomenon for participants was ensured	Research approach
Dependability	Case companies vary in type, size and business conditions	Definition of the research questions Research approach Case selection
Confirmability	Involvement of the researcher to provide further information on the state of the interview	Data collection
	Feedback inquiry for participants to introduce the results of the interviews	Data analysis phase
Transferability	Research design and method was followed consistently to provide a sufficient database to make transfer possible	Data collection Theoretical contribution Managerial contribution Limitations of the study

For credibility, proper and relevant research design was applied. For dependability, case companies varying in type, size, and business conditions were included in this study. For confirmability, the researcher was involved in providing further information on the state of the interview. Also, a feedback questionnaire for participants was conducted to introduce the results of the interviews. For transferability, the research design and method were followed consistently to provide a sufficient database to make transfer possible.

4.1.4 Research process

The research process for case studies is similar to those used for other empirical research, basically following the five-stage linear and sequential process proposed by Stuart et al. (2002) (see Figure 4.1). However, the actual case study process might have to repeat several stages, yielding a much more iterative process. The research process of this study is presented in Figure 4.2. The diagram includes the phases presented by Stuart et al. (2002).

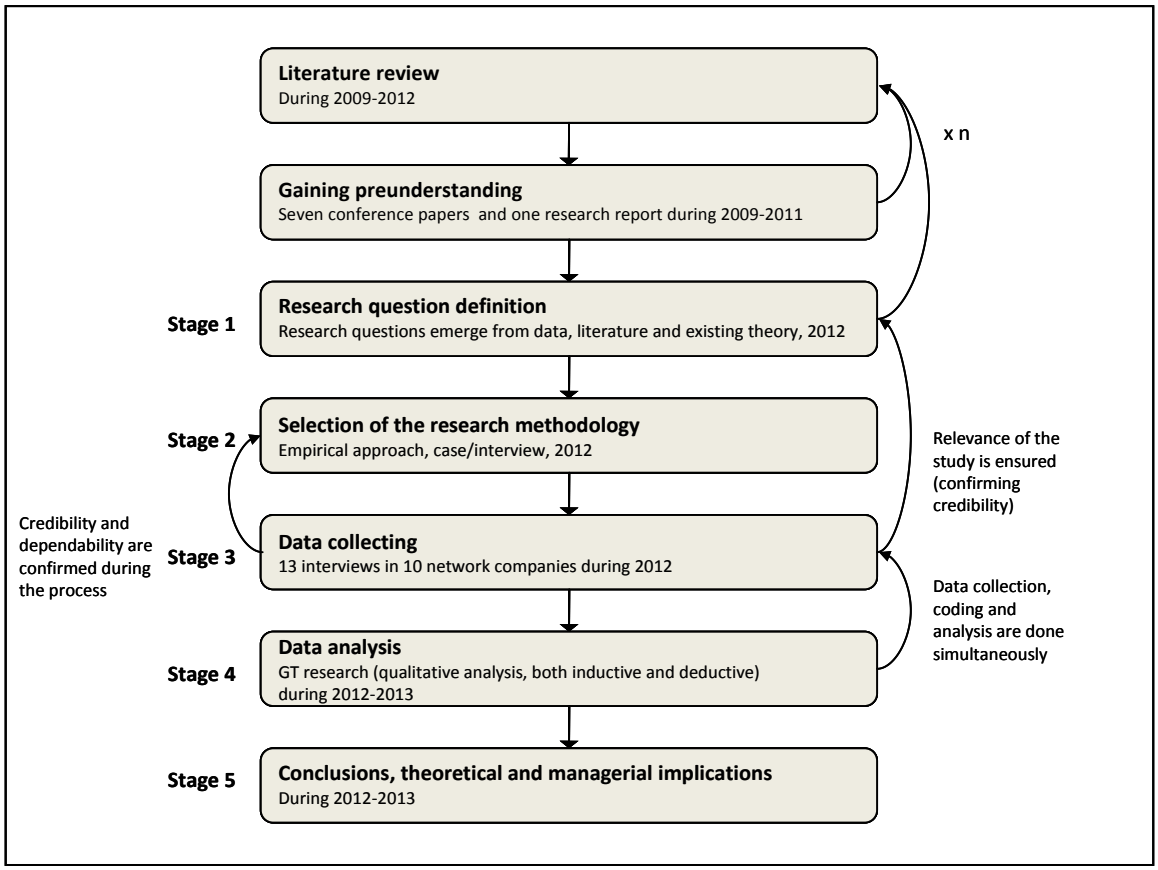

Figure 4.2 Research process

The actual starting point of this research is somewhat vague but the groundwork was done starting from 2009, when the researcher became intrigued by the subject of SCI. Examination of existing research literature and the execution of a survey in both the Finnish construction industry and the Finnish maritime cluster gave a pre-understanding of the research topic and resulted in several conference papers related to information and knowledge sharing in the SCI process as well as the integration potential and integration ability of companies in supply networks. An extensive literature review followed, resulting in the framing of the research questions. The choice of research approach and data collection method was based on the research questions and fundamentally, of course, on the phenomenon of interest. The collected data was analyzed based on the research questions and, in the final stage, conclusions and implications were drawn.

In the following sections, the case selection, case companies, data collection, and data analysis process are discussed in more detail.

4.2 Case selection

As stated above, the relational aspects of collaboration as well as the value potential of these aspects in the project context have not been studied sufficiently. The focal objectives of the Finnish maritime industry are specialization and networking, with emphasis on the need for managing relations in a project-based network environment (ALKU seminar 1.6.2012), thus making this a relevant context for research. The researcher also has previous connection with Finnish maritime industry arising from a survey in 2010 concerning both the Finnish construction industry and the Finnish maritime cluster. The research at hand is part of a larger research project carried out by the Pori Units of the Tampere University of Technology and Turku School of Economics entitled "Alihankkijasta kehittämiskumppaniksi" (also called the ALKU project). The research focus of the project is to increase the competitiveness and innovativeness of small and medium- sized companies in maritime networks. This study represents research from the relational SCM side. The ten companies comprising the case network are also the companies participating in the ALKU project. The research topic of this study is relevant to the context of a case network and the case companies are willing to improve their operations and able to provide relevant empirical data for the purposes of the research. The case network contains a set of varied companies: some of the companies want to become turnkey suppliers, some want to become a part of the network, some want to strengthen their present position, and some are looking for other opportunities.

The industry was selected as it includes supply networks with varying supply chains led by one focal company (the shipyard) with one well-defined objective (the ship or an offshore construction). The maritime cluster has also been developing for years – a well-functioning network is even named as one of the cluster's strategic goals. The case industry is strongly project-related, consisting of projects typically including definite and fixed co-operation, changing supply chain roles and partners, altering end-customer expectations, fluctuating demand, etc. Therefore, it is assumed that supply chains in this industry are also dynamic in nature, which means that the potential and advantages of SCI (i.e. managing supply chain or network relations) are difficult to estimate. This is the challenge this study intends to rise to.

Managing relations in a project context is challenging. Especially, fostering the trust-building which is a focal element of SCI needs attention albeit that this context does not necessarily offer the traditional preconditions, such as longevity or repetition, for trust-building. The SCI challenges in this context are that there is not necessarily any continuity in relationships or that the relationships vary. Traditionally, long-term relationships are seen as preconditions for realization of SCI benefits. However, in project-based supply chains too, suppliers and customers establish and develop

relationships with each other to succeed in competition with other supply chains and to offer maximum value to their customers. Such relationships may be significant to their participants. They may reduce the costs of exchange and production, give the participants some control over each other, be used as bridges to other firms or when supply chains compete with each other.

4.3 Description of empirical research context

Ten companies from the Finnish maritime industry network (Figure 4.3) participated in the empirical part of this research: two shipyards (SY 1 and SY 2) and eight subcontractors (SC A to SC H).

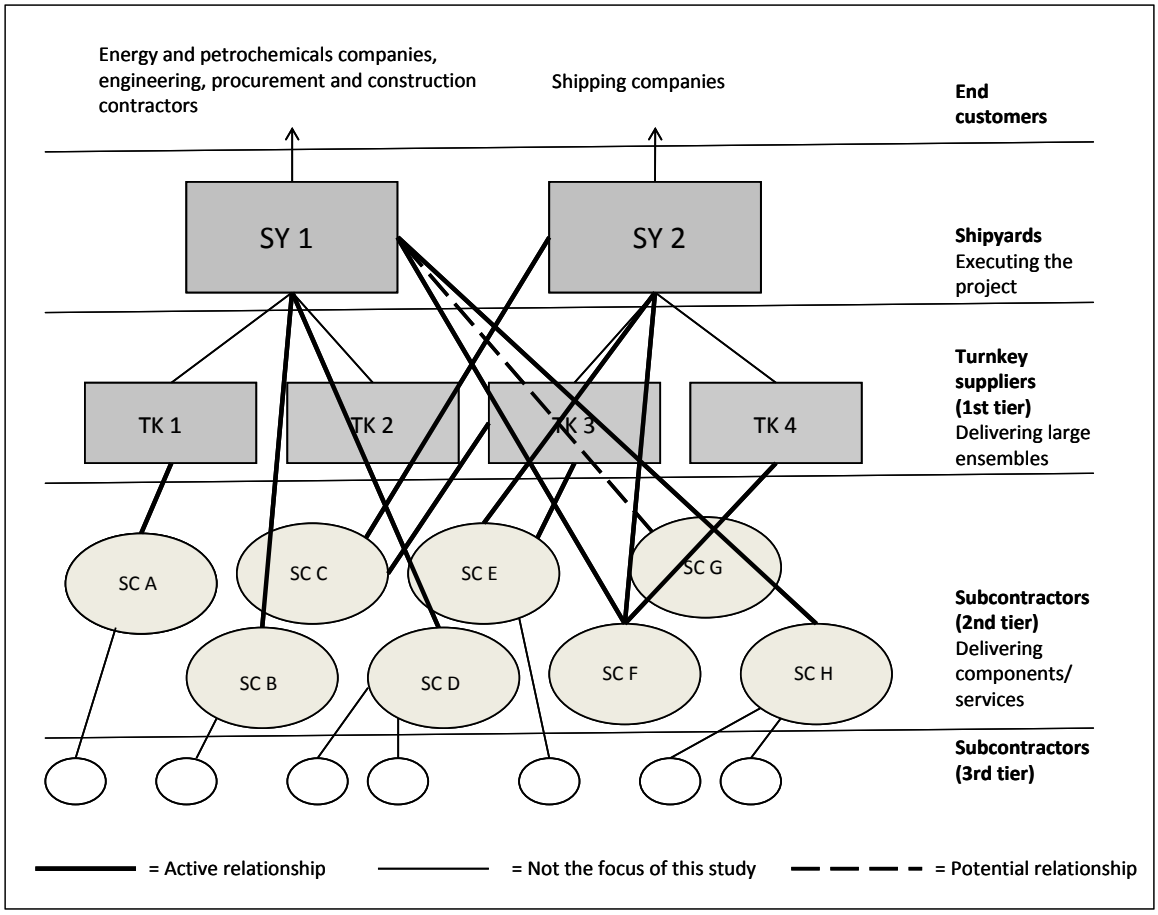

Figure 4.3 The case network relations from the Finnish maritime industry

Subcontractor A is a family business established in 1984. The company is specialized in the subcontracting of individual pieces and sets, and the provision of related customer services. The company delivers machined parts or completed products to their customers according to customer requirements and it also performs work to order as well as welding and mechanical assembly. The company's customers are mainly in the metal industry or the maintenance departments of various industrial companies. At the

beginning of 2008, the company employed 33 people, and the number keeps growing. In the maritime network, SC A manufactures and delivers machined parts for TK 1 motors.

Subcontractor B, established in 1993, is specialized in electrical installations both in the maritime sector and for local authorities and construction firms. The company employs 20 people with a turnover of €2.3 million (2011). Subcontractor B supplies SY 1 with installation work.

Subcontractor C, established in 1985, offers industrial maintenance services for power plants and industrial divisions as well as engineering works on order. The company employs 10 people with a turnover of €3.5 million (2011). For SY 2, the company manufactures ducts, piping, plant units, and steel frames. Small contracts are made with SY 2 directly; big ones are made by the parent company (TK 3) - one of the leading manufacturers in marine catering area solutions and a specialist in turnkey deliveries of marine catering areas.

Subcontractor D, established in 2008, is specialized in temping services both for the maritime sector and metal workshops. SC D provides SY1 with skilled workers, including supervision of work as well as the requisite equipment.

Subcontractor E, a family business established in 1961, employs 80 people with a turnover of €9.4 million (2011). SC E is attuned to the project-based business, offering contract work based on customer drawings. The company works both in the field of workshops and shipyards. SC E manufactures plant units, framework, pipe systems, and components for large diesel engines. The customer for SC E can be either the shipyard (SY 2) or the turnkey supplier (TK 3).

Subcontractor F, established in 2010 with a turnover of €1.5 million and 14 employers, is specialized in surface finishing (i.e. cleaning, grinding and painting) for customers both in the maritime industry and construction. Customers for SC F are both shipyards (SY 1 and SY 2) or alternatively, the turnkey suppliers of the shipyards.

Subcontractor G, a consulting company with 6 employees and a turnover of €200 000 (2011), is specialized in auditing suppliers and developing quality systems for subcontracting workshops. At the moment of the interviews, SC G was exploring a potential customer relationship with SY 1, i.e. there is no active relationship at the moment.

Subcontractor H, established in 1993 with a turnover of €6-7 million and 50-60 employees, specializes in timework for shipyard SY 1. Otherwise the company offers industrial maintenance on one-year contracts and pipe laying and other subcontracting for power plants.

The characteristics of the case network subcontractors are summarized in Table 4.3.

Table 4.3 Characteristics of the case network subcontractors

	SC A	SC B	SC C	SC D	SC E	SC F	SC G	SC H
Established	1984	1993	1985	2008	1961	2010	2004	1993
Interviewee	CEO	CEO	CEO	CEO	CEO	CEO	Consul-tant	CEO
Company size (turnover, personnel)	3.5 M€, 30 people	2.3 M€, 20 people	3.5 M€, 10 people	700 000 €, 23 people	9.4 M€, 80 people	1.5 M€, 14 people	200 000 €, 6 people	~6-7 M€, ~50-60 people
Maritime cluster´s share of turnover	~7 %	10 %	~50 % (has been 90 %)	~14 %	~15 % (SY 2 alone 7 %)	70 % (SY 1 45 % and SY 2 55 %)	-	~1 M€ (goal is 2 M€)
Product vs. service	products (manu-facturing)	service (assemb ly)	products (assembl y)	service	products (manu-facturing, turn key – delive-ries)	service	service	service
Average size of project (€)	~10 000	250 000 - 300 000	ideally 200 000	sizes range, duration 1 month mini-mum	400 000-500 000	700 000 - 1 M (length ~1,5-2 years)	no active project	sizes range, duration ~0.5-1 month
Position in network	no direct relation to SYs, subcon-tractor for TK 1	subcon-tractor for SY 1	subcon-tractor for SY 2 and TK 3	subcon-tractor for SY 1	subcon-tractor for SY 2 and TK 3	subcon-tractor for SY1, SY 2 and TK 4	SY 1 would be the client, subcon-tractors would be targets of develop-ment	subcon-tractor for SY 1
Length of collaboration	~6-7 years	over 15 years	~15-20 years	3 years with SY 1, 2 years with SY 2	51 years	~2 years	8 years previous-ly	~20 years
Importance of the relationship	small	signifi-cant	signifi-cant	signifi-cant	urge to reinforce	signifi-cant (need to even out)	potential	growing

Correspondingly, the characteristics of the case network shipyards are summarized in Table 4.4.

Table 4.4 Characteristics of the case network shipyards

	SY 1	SY 2
Established	1972	Current form from 2008 (previous business entities in 1987, 1989, 1991)
Products	Spar hulls and offshore structures, project management	Ferries, research vessels, naval ships and multipurpose vessels
Company size (turnover, personnel)	66.3M€, 850 people	~100 M€, 850 people
Interviewee(s)	R&D, risk and business continuity management Sub-contracting management	Purchasing management, procurement
Type of contracts	Project-based, recurrent, based on bidding	Project-based, recurrent, based on bidding
Average size of project	not known	TK's share approx. 2 M€
Position in network	Main supplier	Main actor, maker of shipbuilding contracts
Length of collaboration (on average)	1 year	not known
Importance of subcontractor relationships	Significant	Significant (degree of outsourcing ~70-80%)

SY 1 is a manufacturer of offshore oil rigs and other offshore structures. The company is part of a French consolidated corporation employing 30 000 people internationally in the field of designing and manufacturing in the oil and chemical industry. The company's shipyard in Finland employs 850 people (2012) with a turnover of €66.3 million (2011) and is rapidly growing (2012).

SY 2 belongs to an international shipbuilding group with a product range including cruise vessels, ferries, offshore services vessels, Arctic, and other specialized vessels. Europe-wide the company has approximately 14 000 employees. The company has three shipyards in Finland, each specialized in different knowhow: one is an experienced builder of cruise ships and other technically demanding specialized ships and offshore units; one (i.e. SY 2) is known for ferries, research vessels, naval ships and multipurpose vessels; and one is specialized in ice-breaking and ice-going offshore and Arctic vessels. The shipyard in question in this study (SY 2) employs approximately 850 people with a recently reduced turnover of less than €100 million (2012).

4.4 Data collection

To understand the value potential of relational aspects for network companies in project context, semi-structured interviews and conversations with representatives of Finnish maritime industry companies were conducted. Interviewees (representatives of both subcontractors and shipyards) were asked to report on their company's most recent (less than 12 months) relationship within the network. To ensure they were knowledgeable

about the relationship, respondents were instructed to answer the questions with regard to a relationship of which they had high degree of knowledge and experience. The questions were both semi-structured and open. The respondents' comprehension was confirmed by the interviewer's presence to provide further clarification when needed. Interviews were on average 83 minutes in length (ranging from 57 to 118 minutes). All the interviews were audio-recorded and notes were taken during them. The total length of the recordings was approximately 13.5 hours. The recordings were roughly transcribed literally, producing 36 pages of written memos and 5 tables of summaries. The author of this study produced the transcriptions and the tables. Table 4.5 shows a detailed list of the data sources.

Table 4.5 Interview information

Company	# of interviewees	Interviewee's position	Date	Length of the interview	Researcher(s)
Subcontractor SC A	1	CEO	3.5.2012	1 h 22 min	Mäenpää, Luhtanen
Subcontractor SC B	1	CEO	4.5.2012	1 h 29 min	Mäenpää
Subcontractor SC C	1	CEO	8.5.2012	1 h 31 min	Mäenpää
Subcontractor SC D	1	CEO	9.5.2012	58 min	Mäenpää
Subcontractor SC E	1	CEO	21.5.2012	1 h 40 min	Mäenpää
Subcontractor SC F	1	CEO	23.5.2012	57 min	Mäenpää
Consultancy SC G	1	Consultant	12.6.2012	1 h 58 min	Mäenpää
Subcontractor SC H	1	CEO	21.6.2012	1 h 10 min	Mäenpää
Shipyard SY1	3	R&D, risk and business continuity management Subcontracting management	5.10.2012	1 h 23 min	Mäenpää, Luhtanen
Shipyard SY2	2	Purchasing management, procurement	9.11.2012	57 min	Mäenpää, Luhtanen
Total	**13**			**13 h 25 min**	

Earlier, Fabbe-Costes and Jahre (2007 and 2008) highlighted the need to take advantage of previous research when developing measures for measuring SCI and performance and thus, the interview questions in this research were either established scales or developed from the extant literature following both SET, RBV, and TCE approaches. The interview questions can be found in Appendix 2 (subcontractors) and Appendix 3 (shipyards). If possible, the wording and the order of the questions remained unchanged for all respondents. The interviewees were, however, allowed and encouraged to talk freely and the questions were adjusted accordingly. The purpose of the interviews was to explore the state of relational competence, the outcomes of collaboration, and the importance of relationships in case companies' network collaboration.

The *state of companies´ relational competence* (i.e. utilizing social capital) following the SET approach was measured using three dimensions. First, *structural capital* was assessed using the questions adapted from Young-Ybarra and Wiersema (1999). Respondents were asked to indicate the type of communication and sharing of knowledge and information, including proprietary information, with their network partner. Second, *cognitive capital* was assessed using the questions developed by Young-Ybarra and Wiersema (1999). The respondents were asked whether the partners have a common understanding of the motives for collaborating, and the goals and objectives of the partnership. Third, *relational capital* was assessed using the questions developed by Young-Ybarra and Wiersema (1999) based on literature on both interpersonal trust and inter-organizational trust. Young-Ybarra and Wiersema (1999) modified the statements to reflect the nature of the relationship activity for respondents to indicate their organizations' trust in their partner organization. In this research, the respondents were asked to define the way the network relationship was characterized by mutual trust and familiarity with operation modes. The *importance of these social capital dimensions* was assessed using a five-level scale adapted from Skjoett-Larsen et al. (2003). The scale assessed the importance of, for example, information sharing, trust, and common objectives.

One phase in the discussion on relational skills and their impact on outcomes was intended to consider the *significance of collaborative relations* between network actors following the RBV approach. Merely focusing on the source of relational skills and their manifestation would be inadequate unless the significance of relationships was studied. Thus, the interview questions also concentrated on the importance and expected or perceived benefits of collaboration in managing project-based network relations. The aim with these "checking questions" was both to clarify and highlight the importance of network relations as one of the focal elements of supply chain management and collaboration. As Jarillo (1988) states, fairness in sharing the value added is achieved through the mechanism of trust and through valuing the relationship in itself, which also makes it easier to solve specific problems.

The expression of collaboration was assessed using factors such as commitment, flexibility, and opportunism. Respondents were asked to identify the extent of commitment, the ability to respond to changing customer needs and unexpected demand, and the extent of opportunistic behavior as well as checks and control (Kingshott, 2006).

The *business impacts of collaboration* in the form of financial and operational performance following the TCE approach were assessed using statements adapted from Richey and Autry (2009) and Hsu et al. (2008) as well as Kim (2009). Respondents

were asked to indicate the extent of market share, customer loyalty, and sales growth compared to their main competitor. Also, respondents were asked to indicate the extent of product quality, competitive situation and level of customer service compared to their main competitor.

In the first phase of the interview study, first, the *state of relational skills*, i.e. achieving social capital dimensions following the SET approach and second, the *business impacts of collaboration* among subcontractors following the TCE approach were reviewed. In the second phase, the customer's (i.e. shipyards') view regarding the *significance of relations* (following RBV) as well as regarding the exploitation of relational skills was studied. Respondents were asked to define the elements of competitive advantage and the capabilities the company or network should possess to achieve competitiveness. Respondents were also asked about the role relational skills play in competitiveness. Furthermore, the importance of relations and the way of managing and assessing the relations were asked. Finally, interviewees were asked about the way of exploiting the relations as capabilities and the ideas of better utilizing the relations and capabilities as competitive advantage. Also, the subcontractors were asked to estimate the significance of relations. There was, however, a difference in the measurement as the subcontractors were able to assess one relation (with a shipyard or a turnkey supplier) using a simple numerical or verbal classification whereas the shipyards needed to consider the whole network of subcontractors in their estimation.

The secondary data came from several sources. Seminars related to the ALKU project made it possible to obtain complementary information about the case companies and their relations. The company websites as well as other written material concerning the case companies and the Finnish maritime industry were also useful.

4.5 Data analysis

In the analytic process of the study, the data and theory were iteratively compared and reflected on throughout the data collection and analysis phases (Figure 4.4).

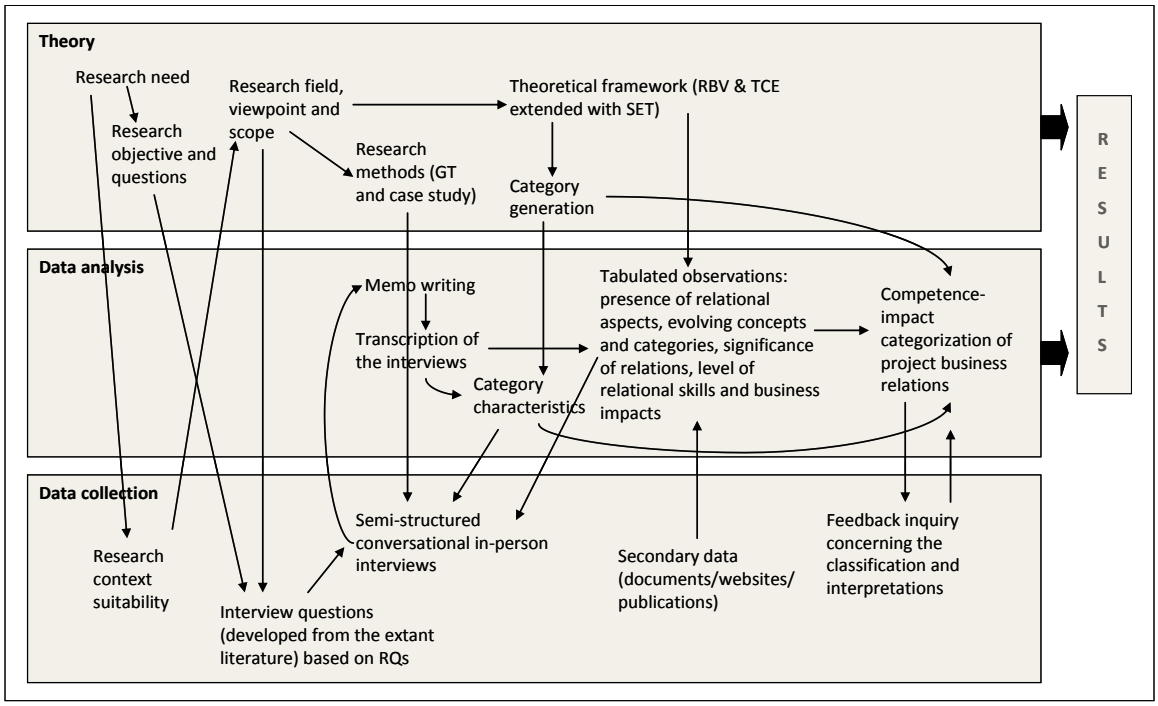

Figure 4.4 Iterative research process

The analysis started immediately after gaining the first contact with a subcontractor. The data collection in the field was done during a seven-month period starting in May 2012 and finishing in November 2012. The analytic process was quite intense as well as iterative during the same period of time. Memo writing became the first main analytical tool for the researcher. In this research memos were mainly written during each interview session. The second tool comprised the tabulated subjects observed from the interviews evidencing the role of SET in explaining the forming of a relationship. The third tool was an evolving categorization that organized the observed subjects to illuminate the relationships between them. The purpose of the memos, tables, and categorization was to facilitate the analytic process.

The analytic process started with memo writing during the first interview. Observations and ensuing ideas were written down. The next step was the transcription of the first interview. All the interviews were transcribed by the researcher. The interview was then analyzed focusing on the main concepts of the study and generating categories. The generation of categories, with descriptions of each category derived from the literature and empirical data, is described in Chapter 5. Classification of the companies based on the typology generated in Chapter 5 is presented in Chapter 6. After positioning the case companies into the typology, the case companies were asked for feedback concerning the classifications and corresponding interpretations to avoid possible researcher bias. However, the respondents could not change the results in their favor.

Software like MS Word, PowerPoint, and Excel were used for creating different research documents and databases. All the research material was stored and organized electronically. The analytic process also included many manual phases with numerous sketches and notes.

5 TYPOLOGY FOR COMPETENCE-IMPACT ESTIMATION

In this chapter the process of generating the typology as well as the results of category generation will be described. This is done in detail in order to provide transparency and to prove that a proper systematic, inductive, and comparative analysis has been conducted and that the typology results from the analysis. Typology generation, or categorizing, means the transfer of bits of data from one context (the original data from the interviews) to another (data assigned to the category) (Dey, 2003). Categorizing requires systematic, logical, and creative thinking as well as relating the categories to an appropriate analytic context and rooting them in relevant empirical material (Dey, 2003). In this study the typology was generated on the basis of inferences from the data, the research questions, the substantive and theoretical issues and intuition, imagination and the researcher's previous knowledge. The iterative process of typology development involved both looking forward towards the overall results of the analysis as well as looking backwards at the data.

To be able to estimate the project companies' relational competence and the business impact of the relationships, a four-quadrant typology based on two category dimensions was developed. The first factor represents the level of relational skills. Adopted from SET, this notion focuses on the structure and state of collaboration to enable the successful management of relationships. The second factor represents the relationships' business impact. Based on TCE, this notion focuses on the benefits, either financial or market, of collaboration. Embedded in this typology is the fact that both parties of a relationship are needed since alone it is not possible to achieve the same results as working together, as RBV suggests.

The factor "Level of relational competence" describes the relational skills the network companies possess. If the level of relational competence is high, members of the project network have mutual and effective communication, trust-based relationships, as well as mutual goals and motives for collaboration. A low level means minimal or one-sided information exchange, limited trust between network actors, and little knowledge of common goals (see Figure 5.1).

The factor "Level of business outcomes" describes the observed outcomes from collaboration. If the level is high, collaboration is observed to improve competitive

position, increase market share, increase sales and turnover, improve quality and flexibility, as well as decrease control. If the outcome level is low, it means that no evidence has been detected or the impact of collaboration on competitive position, market share growth and turnover are seen as negative (see Figure 5.1).

By using the two factors described above, it is possible to roughly classify the network companies into four different relationship type categories (see Figure 5.1).

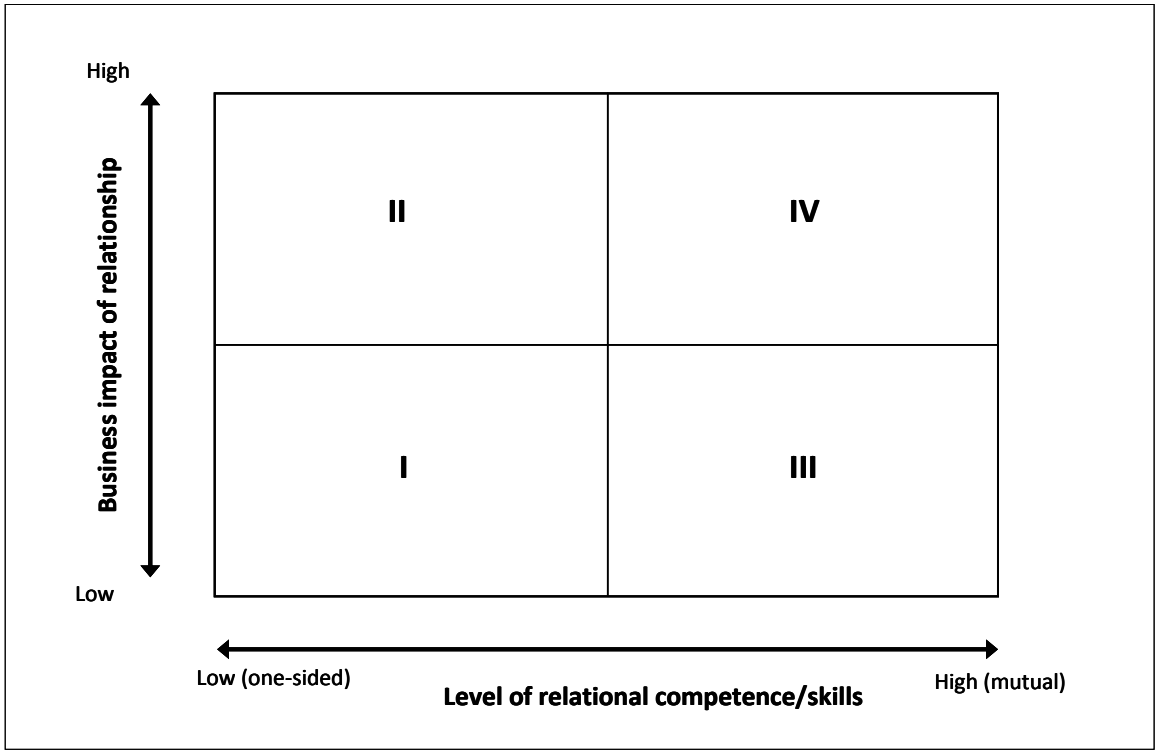

Figure 5.1 Competence-impact categorization

Companies in the lower left corner (section I) are companies with limited or minimal information sharing, lack of trust and little knowledge about their partner company's goals, expectations, and motives. For these companies, collaboration means a decrease or no effect on market share and sales, a decrease or no effect on quality and flexibility, and an increase in the need for control.

Companies in the upper left corner (section II) are companies with a low level of relational skills, i.e. poor information sharing, no mutual goals and motives and limited trust in partner companies. However, these companies benefit from collaboration in the form of improved competitive position, increased market share and sales, improved quality and flexibility, and decreased need for control.

Companies in the lower right corner (section III) are those who reciprocally share information, have goals and motives in line with network partners, and have selectively

trusting relationships. These companies do not rely on a single partner but instead they focus on risk sharing. For these companies, collaboration does not necessarily appear in increased market shares and sales or the business impacts are less significant.

Companies in the upper right corner (section IV) share information reciprocally, have mutual goals and motives in line and have a trusting relationship thus allowing for specialization. These companies benefit from collaboration in the form of improved competitive position, increased market share and sales, improved quality and flexibility, and decreased need for control.

The competence-impact typology will be used in Chapter 6 to classify the case network companies into corresponding sectors to be further controlled and developed to respond to the needs of network competitiveness. On the grounds of the empirical observations, the subcontractors of the Finnish maritime industry will be categorized based on their relational competence and on their relationships' business impacts as suggested by the competence-impact typology.

6 MANAGING RELATIONS IN THE FINNISH MARITIME INDUSTRY

In this chapter the typology generated above is used to categorize the case network companies based on their relational competence and the business impacts of their relationships. The empirical discussion is based on observations made on theoretical grounds (see Chapter 3).

First, the appearance of social capital elements in interviews is discussed in Chapter 6.1. Then, in Chapter 6.2, the significance of network relations is discussed since, as suggested by RBV, value cannot be created by either firm in a dyad or network relationship independently. Next, the state of relational skills is discussed in Chapter 6.3, as value is created out of a company's own resources combined with another's beneficial resources and therefore, an important source of value creation lies in a network of relations and the ability to utilize them, as suggested by SET. Then, in Chapter 6.4, the relationships' impacts on business outcomes are discussed. The chapter concludes with the categorization of the case companies using the competence-impact typology (see Chapter 6.5).

6.1 Building collaboration on relational aspects

The appearance of social capital elements in interviews is discussed first. The observations of the presence of relational aspects are shown in Table 6.1. Table 6.1 illustrates the evidence of building collaboration on relational aspects, thus supporting the idea of utilizing SET as a complementing theory for TCE and RBV. The table does not include a complete list of observations but shows some representative examples. A more complete list of observations can be seen in Appendix 4.

Table 6.1 Presence of relational aspects

Relational aspects	Evidence from the case project network
Communication	"Communication related to work performance and scheduling is important."
	"Information sharing is really important to ensure maximum mutual benefits."
	"Delicate information can also be shared."
	"Communication is open and unofficial."
Trust	"Trust plays a key role because of quality."
	"Trust is important in trading. The customer is trusted to keep his word."
	"Mutual trust is important. Dues are paid in time and information is trustworthy."

	"Keeping one's word" is mutual. You must also inform each other of failures."
	"Trustworthiness depends on a person."
	"Trust can be seen in industrial peace. Knowing the partner personally is important."
	"Trust must be earned by first impressions and one's own actions."
	"A trusting relationship throughout the organization is important."
	"Trust is more inter-personal than inter-organizational. Keeping the agreements is an expression of trust."
Shared values	"Customer is known to expect good work, good quality in time. The success of both companies is a mutual interest."
	"Experience has taught us the partners' objectives."
	"Knowing the partner's objectives set for the collaboration is important. Mutual objectives are in line: the customer wants the work to be done and requires skilled workers, the subcontractor provides them."
	"Often, the objectives of management, owners and personnel differ."
	"Values and objectives might be clear for the management but this information does not necessarily trickle down the organization."
	"Working is not possible if the partner's objectives are not known."

The empirical observations above show that collaboration is also built on important relational aspects such as communication, trust, and shared values and objectives, not only on contracts. These elements of social capital are seen as important as, for example, communication is manifested in work performance and scheduling; trust is manifested in quality; and mutual objectives set the direction for collaboration. Contracts alone do not enable anticipation and preparing for different, unexpected, or unfamiliar situations - therefore, relational skills are highlighted.

6.2 Significance of network relations

The significance of relations needs to be confirmed to justify further discussion of the subject. If relations are not seen to be of any importance, there is hardly any sense in studying either the level of relational competence or the impacts of relationships. In this chapter the empirical observations on the significance of relations (based on RBV) from both the shipyard and the subcontractor point of view are discussed.

Out of the eight subcontractors in this study, three stated the importance of the relationship to be significant, one defined it as potential, one growing, one found there an urge to reinforce it, one mentioned the need to balance out the currently significant relationship, and one stated the importance of the relationship to be small (see Table 4.3). The one subcontractor (SC A) that assessed the importance of the relationship as small at the moment nevertheless rated the relationship to be working quite well (4, on a scale of 1 to 7). In the future, the significance of the relationship may change as, according to SY A:

> […the attractiveness (of the relationship) will change if the economic cycle changes…]

The three subcontractors (SC B, C and D) that assessed the importance of the relationship to be of significance rated the relationship to be either working very well (7, on a scale of 1 to 7) or very good (5 or 6, on a scale of 1 to 7). As SC B states:

> […it (relationship) could not be better…]

Also, improvements were recognized. As SC D states:

> […it would be wise to invest more in relational skills and personal contacts…]

The one subcontractor (SC E) that found the urge to reinforce the relationship estimated the significance of the relationship to be quite considerable (4, on a scale of 1 to 7) in the future as the relationships help balance the dependence of the company on one big partner.

The one subcontractor (SC F) that found the need to balance out the currently significant relationship estimated the future importance of the relationship to be rather large (5, on a scale of 1 to 7). Simultaneously the company admitted that a big portion of the maritime industry's turnover is a risk.

The one subcontractor (SC G) that did not currently have an active relationship with the shipyards nevertheless defined the possible relationship as potential. It also found the maritime industry to be an important cooperation partner in the future.

The one subcontractor (SC H) that found the importance of the relationship to be growing estimated the future significance as quite considerable (4, on a scale of 1 to 7). According to SC H, the importance would definitely grow if the company got bigger ensembles to supply.

Based on the empirical observations, we can conclude that the interviewees recognize the significance of network relations. The significance is manifested in the subcontractors' position as future subcontractors as well as in access or staying on the shipyards' list of approved suppliers. However, no congruent view of the significance of network relations was observed. This might indicate some sort of incongruity in the network.

For subcontractors, it was easier to assess one relationship (with a shipyard or a turnkey supplier) using a simple numerical or verbal classification, whereas the shipyards needed to consider the whole network of subcontractors when assessing the significance of network relations. Both the shipyards highlighted the importance of subcontractor

relations, as the degree of outsourcing is about 70-80 %. However, to figure out the viewpoint of the shipyards more exactly, the significance of the relationships was clarified first by asking about the exploitation of the relations and relational skills (Table 6.2), then the opinions of relationships as sources of competitiveness (Table 6.3), and finally, thoughts of exploiting the relationships in the future (Table 6.4).

The shipyard viewpoint concerning the exploitation of relations and relational skills is shown in Table 6.2. The table does not include a complete list of empirical observations but shows some representative examples. A more complete list can be seen in Appendix 5.

Table 6.2 Exploiting relations and relational skills: shipyard viewpoint

Evidence from the case project network (shipyards)
"Long-term relations enable the adoption of safety training."
"Good relations with subcontractors benefit the shipyard because the shipyard is dependent on the subcontractors."
"Having working relations on every level of the collaborating companies is unconditionally important."
"Mutual trust means that the shipyard knows what each subcontractor is able to supply and the subcontractors know that the shipyard gets new projects."
"Personal acquaintance is important – there is always someone in the network who knows a person or a company."
"Relational skills are exploited when choosing the subcontractors: who has the required know-how and is able to deliver, what is the work load, how did the subcontractor get along in previous collaboration with the shipyard and what is the level of work safety."
"Collaboration decreases uncertainty and increases risk sharing."
"Collaboration with subcontractors produces new implementation ideas, tips for modulation, open discussion concerning how things could be done differently aiming at shorter through-put times."
"Recurrence of relations is extremely important. Recurrence decreases uncertainty, increases mutual understanding, decreases conflicts, and "improves your night's sleep"."
"Recurrence in TK relations has been successful: the risk for shipyard has become lower compared to the results."
"Recurrent relations affect the amount of conflicts: fewer contradictions in the endgame, shorter fix lists, less items in the finishing meetings."
"Repeating collaboration improves quality: information is shared, qualitative learning occurs, deviations are reacted to more quickly, feedback is directed to the right destination."

Based on the above observations, it can be noted that relations and relational skills are manifested, for example, in safety training, choosing of suitable subcontractors,

increased risk sharing, decreased uncertainty, and improved quality for the case shipyards. All these issues are also part of the functionality of the network. Next, the observations on relationships as the source of competitiveness are presented (Table 6.3). A more complete list of comments on relations as the source of competitiveness can be seen in Appendix 5.

Table 6.3 Relations as the source of competitiveness: shipyard viewpoint

Evidence from the case project network (shipyards)
"Choosing subcontractors is based on work safety, reliability in delivery and quality – sources of competitiveness for the shipyard."
"HSE (health, safety and environment) is the most important source of competitiveness for the shipyard. Other sources of competitiveness are reliability in delivery and quality."
"A trustworthy and well-working supply chain (skillful and capable supply chain) is an essential source of competitiveness."
"Network success rests on the way projects are executed. Keeping up with the schedule and quality are crucial."
"Competitiveness is based on suitable and right resourcing. Those concerned need to have sufficient knowledge. The right people in the right places."
"The ability to fulfill customer needs brings competitiveness."

Based on the above, it can be noted that, from the shipyard point of view, choosing subcontractors based on safety issues, reliability of delivery, trustworthiness, and quality increases competitiveness. All these elements are also manifestations of relationships and relational skills, as has been stated above (see Table 6.2).

Observations on exploiting the relationships in the future are presented in Table 6.4. The complete list of empirical observations can be seen in Appendix 5.

Table 6.4 Exploiting relationships in the future: shipyard viewpoint

Evidence from the case project network (shipyards)
"Subcontractors should be visited and audited to find out about future subcontracting. Subcontractors could be invited to a common event for sharing information and discussion. There should be continuous common activities."
"Also the "feedback from lessons learned" occasions should be utilized more."
"Subcontractors should be involved in the project earlier. Partnerships could be one possibility to increase the extent of value added."
"The idea of partnerships has been introduced - the network was not ready yet. Raising competitiveness requires openness and knowing the costs."
"Subcontractors could be engaged for a couple of projects instead of one. For example in the case of rented staff, long-term contracts might be reasonable."
"Actors with inadequate social skills would be potential partners if negotiations and communication during the project functioned better."

To conclude the above observations (Tables 6.2, 6.3 and 6.4 and Appendix 5), the significance of relations is emphasized in reliability of delivery as well as safety and quality issues over low prices for SY 1 and in punctuality and quality beside the ability to implement customer needs for SY 2. From the subcontractor viewpoint, the importance of relations was mainly stated to be significant, potential and growing – also in future collaboration. Representatives of the shipyards in their answers highlighted the maintaining or developing of competitive skills and resources, whereas the subcontractors emphasized developing the business through presence and collaboration with the cooperating partner.

6.3 State of relational skills

In this chapter the state of the relational skills of the companies (i.e. subcontractors) in the case project network are classified. In this classification the level of relational skills can be defined in terms of communication, trust, common goals, and specialization. If the level of relational skills is high, information is reciprocally shared, goals and motives are aligned, and the relationship is trusting, thus allowing specialization. A low level of relational skills means limited information sharing, lack of trust, and little knowledge about the other company's goals, expectations, and motives (see Figure 5.1).

The original data was examined to pick up comments on both the level of relational skills as well as the level of the business impact of the relations. The comments (i.e. subjective views from the interviewees) on each element of relational skills and business impact were divided into either a low or high level of relational skills or business impacts. This enabled the formulation of four classification categories (see Tables 6.5 and 6.6).

Table 6.5 Classification framework for relational skills

	LEVEL OF RELATIONAL SKILLS	
RELATIONAL SKILLS	**LOW**	**HIGH**
Communication	"We don't have much communication. Information sharing is poor." *(SC A)* "Changes in information must always be confirmed." *(SC B)* "Information is available if one asks and is active. Information concerning the company does not always come	"Information sharing is at a good level. Especially SY 1 keeps us well informed. There are weekly meetings on the site." *(SC B)* "Information is mutually shared. There are planning meetings every two weeks. Also sensitive information can

	through." *(SC D)* "Information concerning changes does not always come through." *(SC E)*	be shared." *(SC C)* "We are informed of changes and updates. Communication is mutually open with SY 2. Information is shared unofficially, not based on contracts." *(SC F)* "SY 1 gives advance information. SY 1 has been informed about investments in SC H. Communication is both regular and unofficial." *(SC H)*
Trust	"The partner usually keeps its word and information can be trusted. It is not known whether the partner considers our company's benefits when making decisions." *(SC A)* "SY 2 can always be trusted during the project. Information gained from SY 2 is trustworthy. SY 2 is mostly interested in its own success together with its subcontractors' situation." *(SC C)* "SY 1 can always be trusted during the project. Information gained from SY 1 can be trusted. Shipyards do not always keep their promises, for example in approving additional tasks. SY 1 tries to be fair." *(SC D)*	"SY 1 keeps its word and can be trusted. Information gained from the customer can be trusted. SY 1 is truly interested in its partner's success. SY 1 is believed to keep its subcontractor in mind when making decisions." *(SC B)* "SY 2 both is and is not trustworthy. Order and manufacturing information can be trusted, price information not. The success of a shipyard guarantees the existence of the subcontractor and correspondingly, shipyards depend on their subcontractors." *(SC E)* "SY 2 has been trustworthy. Ways of operation are known and the information gained from SY 2 can be trusted. SY 2 is honestly concerned about its subcontractor and SY 2 is believed to keep its subcontractors in mind when making decisions." *(SC F)* "SY 1 can be trusted during the project. SY 1 keeps its promises and the information gained from SY 1 can be trusted. SY 1 is interested in its subcontractors' success and is believed to keep SC H in mind when making decisions." (SC H)
Common goals	"Price is something we argue about, otherwise the goals are clear: the customer makes an order and we manufacture it." *(SC A)* "Common goals are not discussed. It is assumed that they are known. " *(SC E)*	"The partner's success is of mutual interest. The company's strength is in offshore competence and this obviously benefits the customer." *(SC B)* "SYs are assumed to trust the company's competence and therefore use it." *(SC C)* "Objectives are assumed to be in line. SY needs work to be done and expects skilled workers." *(SC D)* "Common goals are known and the

		motives for collaboration are in line between the companies." *(SC F)* "Motives for collaboration are mutual: SY 1 needs a workforce and SC H supplies it." *(SC H)*
Specialization (dependence)	SC A: pure transaction (not dependent) SC F: need to balance the role of the maritime cluster with that of the construction industry	SC B: unique competence in maritime industry SC D: company invests in maritime collaboration to the full SC H: turnkey deliveries would increase mutual dependence, investing in this
Classification	**Section I or II** **Transaction-focused, low level of relational competence, focus on single supply**	**Section III or IV** **Specialization-focused, high level of relational competence, focus on collaborative supply**

Answers from SC G are not taken into account as the company seems to be a "hang around member", i.e. not in an active relationship within the network at the time of the research.

6.4 Impacts on business outcomes

In this chapter the impacts of relations on the business outcomes of companies (i.e. subcontractors) in the case project network are classified. In this classification, the business impact of collaboration can be defined in terms of impact on competitive position, impact on market share, impact on sales (growth), quality, flexibility, and control.

If the level of business impact is high, collaboration improves the competitive position, increases market share and sales, improves quality and flexibility, and decreases the need for control. A low level of business impact means decreases or no effect on market share and sales, decreases or no effect on quality and flexibility, and an increased need for control (see Figure 5.1). The empirical observations of the influence of relations are shown in Table 6.6.

Table 6.6 Classification framework for business impacts

	LEVEL OF BUSINESS IMPACTS	
BUSINESS IMPACT (financial or operational benefits)	**LOW**	**HIGH**
Impact on competitive position	”Collaboration has not affected the company’s competitive position.” (*SC C)*	“The company does not have any competitors as the collaboration has made it the market leader.” *(SC B)* “Knowhow in the maritime sector has improved the company’s competitive position.” *(SC D)* “The competitive position has improved because of collaboration in the maritime industry.” *(SC F)*
Impact on market share	“During the last 6-7 years, the company has got some important customer relationships but the impact of this collaboration is not known.” *(SC A)* “Collaboration has not increased the market share – on the contrary, the portion of the maritime industry has decreased.” *(SC E)*	“The shipyard is a good reference and brings new customers. Thus the company’s market share has increased.” *(SC B)* “Collaboration has increased the company’s market share. “(*SC D)* “Collaboration has increased the market share.” *(SC F)* “Collaboration has increased the company’s market share.” *(SC H)*
Impact on sales (growth)	“Previously collaboration increased the growth of turnover, at the moment it does not have much importance.” *(SC A)*	“Collaboration has increased the amount of sales.” *(SC B)* “Collaboration has increased the amount of turnover.” *(SC C)* “Collaboration has increased the company’s sales. “(*SC D)* “Collaboration has increased company’s sales – at the same time it is off somewhere else. “(*SC H)*
Quality		“The customer is demanding and thus the quality has improved.” *(SC B)* “The shipyards’ orders and demands have enabled quality improvements and made work easier.” *(SC C)* “Collaboration has improved quality in the form of unique maritime knowhow.” *(SC D)*

		"Control and supervision in the maritime industry ensure good quality." *(SC E)* "Collaboration has improved the quality." *(SC F)*
Flexibility		"Collaboration enables planning of future work even though there is no contract yet." *(SC F)*
Control (opportunism)		"Good relational skills increase the reliability, decrease control, and enable concentration on other issues." *(SC E)*
Classification	**Section I or III** **Low level (short-term) or no business impacts, low level of dependency, financial outcomes**	**Section II or IV** **High level of business impacts, high level of dependency (specialization), financial and operational outcomes**

Flexibility is said to be part of the industry. Almost every interviewee emphasized the fact that unexpected fluctuation is part of the business and the ability to respond to changes is vital in this field. In other words, collaboration does not necessarily affect flexibility. Instead, flexibility is seen as a necessity to be able to operate in this branch of industry.

6.5 Categorization of companies based on relational aspects of collaboration

The constructs discussed above enable all companies to be assigned to one of the four quadrants shown in Figure 5.1. Next the empirical observations of relational skills and business impacts of collaboration (i.e. the two factors in the earlier generated CI typology) are examined. First the interview comments are grouped to perceive the arising focal concepts and then, the higher-level categories are developed based on the emerging concepts and named to better describe the actual nature of the category (following the idea by Nieminen, 2011). In this way, for example, concepts like "poor information sharing", "limited trust" and "no knowledge of common goals" were organized under a category labeled "indifferent partner". The empirical observations coming up from the data, the evolving concepts and the resulting categories for 1) committed partners, 2) diversifying partners and 3) indifferent partners are presented in Tables 6.7, 6.8, and 6.9 respectively.

Table 6.7 Category generation for committed partners

Observations related to relational skills and business impacts	Concepts	Category
Good information sharing Weekly meetings on the site Mutual information sharing Planning meetings every two weeks Sharing of sensitive information Changes and updates informed Mutually open communication Unofficial information sharing Advance information available Regular and unofficial communication	Mutual and effective communication, versatile information sharing	Committed partner
Partner "keeps its word" and can be trusted Customer information can be trusted Customer is truly interested in its partner's success Customer is believed to bear its subcontractor in mind when making decisions	Trust-based, caring relationship	
Partner's success is a mutual interest. Subcontractor's competence benefits the customer. Common goals are known. Motives for collaboration are mutual	Mutual goals and motives for collaboration	
Subcontractor has unique competence in the maritime industry Subcontractor invests in maritime collaboration to the full Turnkey deliveries would increase the mutual dependence	Focus on specialization (dependence), commitment	
Collaboration enabled market leadership Knowhow in the maritime sector has improved the company's competitive position Collaboration enabled a competitive position	Collaboration for improved competitive position	
SY is a good reference and brings new customers thus increasing the company's market share Increased market share through collaboration	Collaboration for increased market share	
Collaboration enabled increase in sales Increased amount of turnover due to collaboration	Collaboration for growth in sales and turnover	
Improved quality due to collaboration and demanding customer	Improved quality	

Collaboration enabled planning (future work)	Improved flexibility
Collaboration enabled increase in reliability, decrease in control, and concentration on other issues	Decreased control

"Diversifying partners" are those who look for more companies to be partners with instead of relying on only one partner or one line of industry.

Table 6.8 Category generation for diversifying partners

Observations related to relational skills and business impacts	Concepts	Category
Information is available for active players Changes and updates are not necessarily informed, "pecking order" not known	Good information sharing	Diversifying partner
Customer usually keeps its word and information from it can be trusted Partner's trustworthiness depends on the person collaboration is done with SY is not informed of intra-organizational operational changes in case of information leaks to competitors	Selective trust	
The company's competence is assumed to be the reason for collaboration Objectives are assumed to be in line (work to be done vs. expects skilled workers)	Assumed common goals	
Need to balance the role of maritime industry with construction industry Maritime industry balances the role of another big customer in the process industry	Risk sharing	
Collaboration does not affect the competitive position Collaboration does not increase market share	Short-term or negligible business impacts	

"Indifferent partners" are the ones with low level of relational competence and no notable business impacts due to relational skills.

Table 6.9 Category generation for indifferent partners

Observations related to relational skills and business impacts	Concepts	Category
Not much communication Poor information sharing Changes in information must be confirmed Information concerning the company or changes does not always come through	Poor information sharing	Indifferent partner
Customer can be trusted only during the project SY can be trusted whenever it has work	Limited trust	
It is not known whether the partner considers the company's benefits when making decisions Common goals are not discussed	No knowledge of common goals	
Price is the focus in negotiations	Cost-centered	
No effects on company's competitive position Impact of collaboration for getting new important customer relationships is not known Collaboration, i.e. the portion of the maritime industry has decreased the company's market share Previously collaboration increased the growth of turnover, at the moment it does not have much importance	No evidence or negative impacts of collaboration on competitive position, market share growth and turnover	

There are no empirical observations related to the upper left category (section II, see Figure 5.1) called benefitting partners. Typical for this category is a low level of relational competence yet notable business impacts. The absence of observations in this category is clear as all the participants of this study have consciously been developing their operations as potential subcontractors in the network and therefore this kind of opportunistic position would be rather exceptional. The case companies have been selected to participate the study and they also recognize the opportunities of network collaboration.

The model shown in Figure 6.1, the Relational Competence Impact Model (RCIM), illustrates the relationship types available to match the relational competence of a firm.

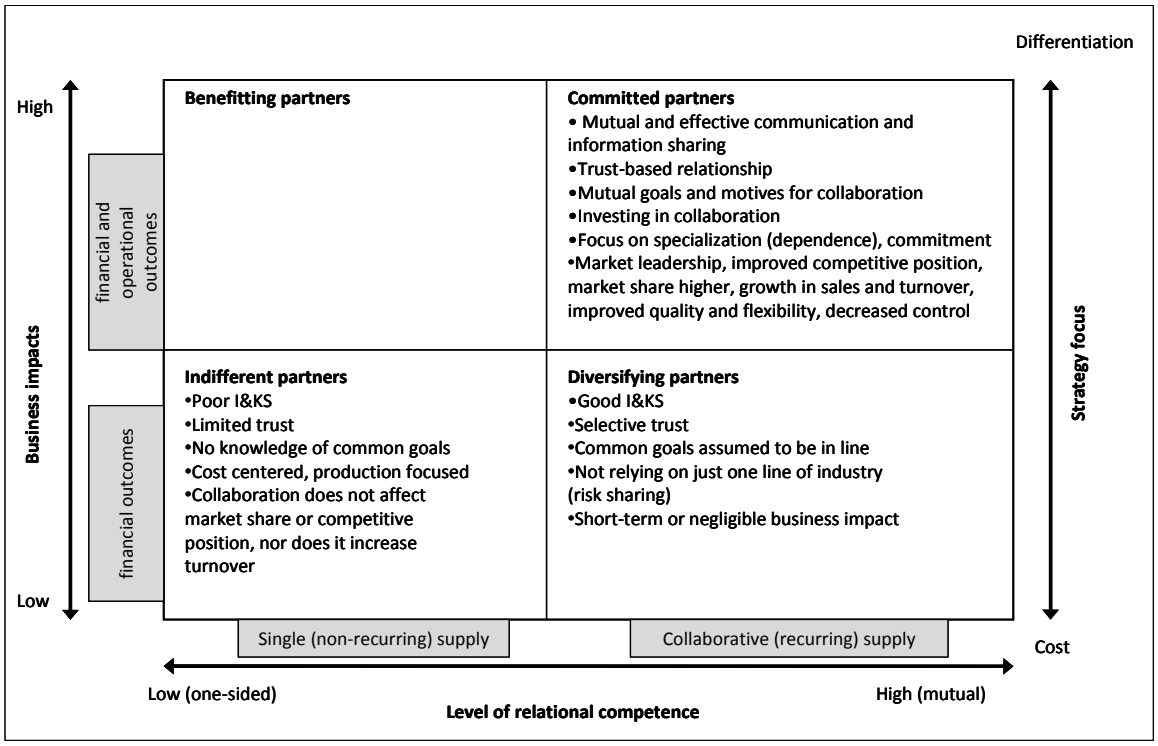

Figure 6.1 Relational competence-impacts model (RCIM): categories and characteristics

This model indicates that low relational competence would only allow for what is termed an "indifferent partnership". Characteristics of this relationship type are focusing on products and costs, poor information and knowledge sharing, limited trust and no common objectives (mere transactions). Based on RCIM, a high level of relational competence would allow for either a diversifying or committed relationship. Diversifying partners typically have good information and knowledge sharing, have common objectives and selective trust and tend to share the risk by not relying on just one line of industry. Committed partners typically have a trust-based relationship, effective information and knowledge sharing and mutual goals, and they invest in collaboration and focus on specialization.

The most representative quotes from the interviews for each of these categories are presented in Tables 6.10, 6.11 and 6.12.

Table 6.10 Content of category I with representative quotes

Category I: Indifferent partners	
Poor information sharing	"We don't have much communication. Information sharing is poor." *(SC A)*
Limited trust	"The partner usually keeps its word and information can be trusted. It is not known whether the customer considers the subcontractor's benefits when making decisions." *(SC A)*

No knowledge of common goals	"Common goals are not discussed. The customer's real interest in the subcontractor is not known." *(SC A)*
Cost centered	"Price is something we argue about, otherwise the goals are clear: the customer makes an order and we manufacture it. For SC A collaboration means pure transaction." *(SC A)*
No evidence or negative impacts of collaboration on competitive position, market share growth and turnover	"During the last 6-7 years the company has got some important customer relationships but the impact of this collaboration is not known." *(SC A)* "Previously collaboration increased the growth of turnover, at the moment it does not have much importance." *(SC A)*

There were no observations representing category II, benefitting partners.

Table 6.11 Content of category III with representative quotes

Category III: **Diversifying partners**	
Good information sharing	"Information is mutually shared. There are planning meetings every two weeks. Also sensitive information can be shared." *(SC C)* "Keeping to the schedule is important to all and communication should support it." *(SC C)* "Changes and updates are not necessarily informed as the "pecking order" is not known." *(SC E)*
Selective trust	"The shipyard can be trusted during the project – competition is based on price and collaboration is always uncertain until the contract is done." *(SC C)* "The partner's trustworthiness depends on the person you are collaborating with." *(SC E)* "Intra-organizational operational changes are not informed to SY in case of information leaks to competitors." *(SC E)* "SY 2 both is and is not trustworthy. Order and manufacturing information can be trusted, price information not." *(SC E)*
Assumed common goals	"SYs are assumed to trust the company's competence and therefore use it." *(SC C)* "Objectives are assumed to be known, common targets and values are not discussed." *(SC E)*
Risk sharing	"There is need to balance the role of the maritime industry with the construction industry." *(SC F)* "The partner in the maritime industry balances the role of another big process industry customer." *(SC E)*

Short-term or negligible business impacts	”Collaboration has not affected the company’s competitive position.” *(SC C)* “Collaboration has not increased the market share – on the contrary, the portion of the maritime industry has decreased.” *(SC E)*

Quotes from the interviews for category IV are presented in Table 6.12.

Table 6.12 Content of category IV with representative quotes

Category IV: **Committed partners**	
Mutual and effective communication, versatile information sharing	“Information sharing is at a good level. Especially SY 1 keeps us well informed. There are weekly meetings on the site.” *(SC B)* “We are informed of changes and updates. Communication is mutually open with SY 2. Information is shared unofficially, not based on contracts.” *(SC F)* “SY 1 gives advance information. SY 1 has been informed about investments in SC H. Communication is both regular and unofficial.” *(SC H)*
Trust-based, caring relationship	“SY 1 keeps its word and can be trusted. Information gained from the customer can be trusted. SY 1 is truly interested in its partner’s success. SY 1 is believed to keep its subcontractor in mind when making decisions.” *(SC B)* “SY 2 has been trustworthy. Its ways of operation are known and the information gained from SY 2 can be trusted. SY 2 is honestly concerned about its subcontractor and SY 2 is believed to keep its subcontractors in mind when making decisions.” *(SC F)* “SY 1 can be trusted during the project. SY 1 keeps its promises and the information gained from SY 1 can be trusted. SY 1 is interested in its subcontractors’ success and is believed to keep SC H in mind when making decisions.” *(SC H)*
Mutual goals and motives for collaboration	“The partner’s success is of mutual interest. The company’s strength is in offshore competence and this obviously benefits the customer.” *(SC B)* “Objectives are assumed to be in line. SY needs work to be done and expects skilled workers.” *(SC D)* “Common goals are known and the motives for collaboration are in line between the companies.” *(SC F)* “Motives for collaboration are mutual: SY 1 needs a workforce and SC H supplies it.” *(SC H*
Focus on specialization (dependence), commitment	“Subcontractor B has unique competence in the maritime industry.” *(SC B)* “Subcontractor D invests in maritime collaboration to the full.” *(SC D)* “For SC H, turnkey deliveries would increase the mutual dependence. Therefore SC H is investing in this.” *(SC H)*

Collaboration for improved competitive position	"The company does not have any competitors as the collaboration has made it the market leader." *(SC B)* "Knowhow in the maritime sector has improved the company's competitive position." *(SC D)* "The competitive position has improved because of collaboration in the maritime industry." *(SC F)*
Collaboration for increased market share	"The shipyard is a good reference and brings new customers. Thus the company's market share has increased." *(SC B)* "Collaboration has increased the company's market share. "(*SC D)* "Collaboration has increased the market share." *(SC F)* "Collaboration has increased the company's market share." *(SC H)*
Collaboration for growth in sales and turnover	"Collaboration has increased the amount of sales." *(SC B)* "Collaboration has increased the amount of turnover." *(SC C)* "Collaboration has increased the company's sales. "(*SC D)* "Collaboration has increased the company's sales – at the same time this is taken off somewhere else. "(*SC H)*
Improved quality	"The customer is demanding and thus the quality has improved." *(SC B)* "The shipyard's orders and demands have enabled quality improvements and made work easier." *(SC C)* "Collaboration has improved the quality in the form of unique maritime knowhow." *(SC D)* "Control and supervision in the maritime industry ensure good quality." *(SC E)* "Collaboration has improved the quality." *(SC F)*
Improved flexibility	"Collaboration enables planning of future work even though there is no contract yet." *(SC F)*
Decreased control	"Good relational skills increase the reliability, decrease control, and enable us to concentrate on other issues." *(SC E)*

Figure 6.2 shows the location of the case companies in the CI model. Due to the qualitative nature of the research, the classification is relative and based on the strength and appearance frequency of interview comments. Also, as is typical for qualitative research, the location of companies is based partly on the researcher's own interpretation of empirical observations, not on unambiguous quantitative results.

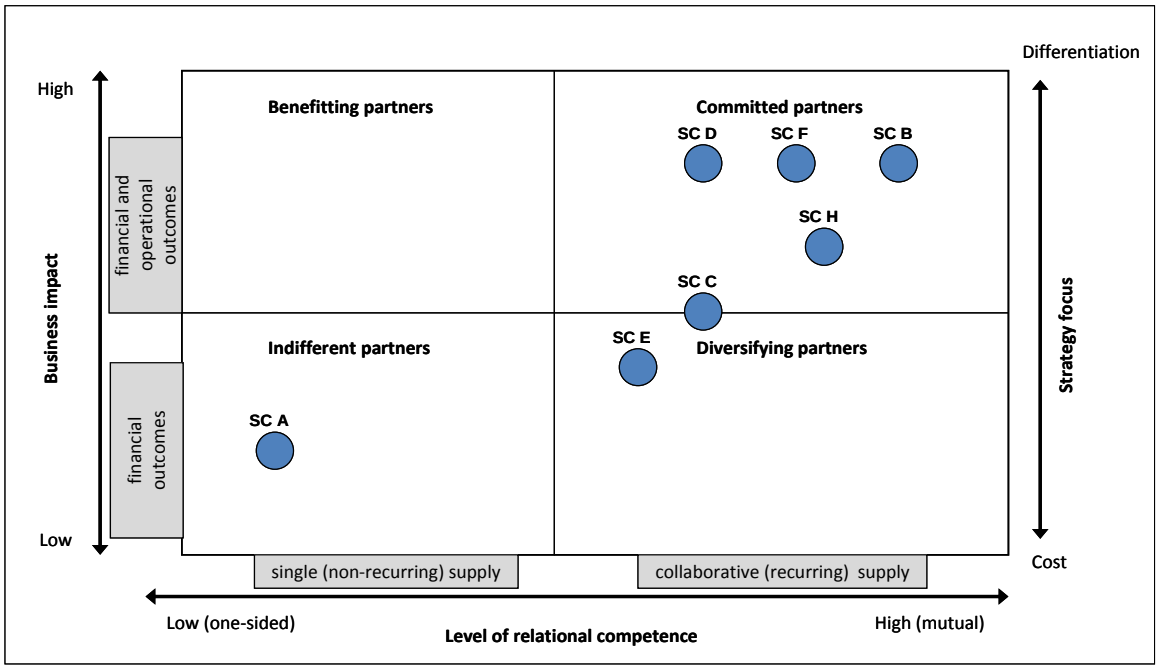

Figure 6.2 Competence-impact classification of case companies

In the interviews, subcontractors B, C, F, and H emphasized open, regular, and mutual communication and information sharing whereas SC A replied that information sharing and communication with the customer was poor. Also, while other subcontractors (B, C, D and H) recognized an increase in sales and turnover due to collaboration, subcontractor A found the impact of collaboration on sales to be rather unimportant at the moment.

Subcontractor B unreservedly found its customer to be trustworthy and truly interested in its subcontractors' success. Slightly more tentatively, subcontractors F and H also found their customer to be trustworthy, at least during the project. They also believe that customer is interested in its subcontractors' success.

From a strategy focus, SC A is focused on the pure transaction (i.e. single supply) whereas SC B has developed unique competence in the maritime industry enabling collaborative supplies. SC D reports investing in maritime collaboration to the full and SC H invests in offering turnkey deliveries to its customer, leading to an increase in mutual dependence.

Subcontractors B, D, and F highlight the fact that collaboration and knowhow in the maritime sector has improved their competitive position whereas SC C found the impact of collaboration on their competitive position to be insignificant. Also, according to subcontractors B, D, F, and H, collaboration has increased the companies' market share whereas SC E reported no increase in market share due to collaboration.

Due to collaboration with a demanding customer, most of the interviewees reported quality improvements (subcontractors B, C, D, E, and F).

6.6 Summary of observations

The empirical observations among companies in the Finnish maritime industry provide evidence of building collaboration on relational aspects such as communication, trust and shared values and objectives, not only on contracts. This also supports utilizing SET as a complementing theory beside TCE and RBV, as was the theoretical basis of this research.

To justify the research, the significance of relations was first ensured both from the subcontractor and shipyard viewpoint. For SY 1, the significance of relations was emphasized in reliability of delivery as well as safety and quality issues over low prices. For SY 2, the significance of relations was emphasized in punctuality and quality beside the ability to implement customer needs. Apart from one comment, from the subcontractor viewpoint, the importance of relations was stated to be significant, potential and growing – also in future collaboration.

The shipyards emphasized safety, punctuality, and quality issues as central elements of maintaining the network and its competitiveness. Subcontractors for their part focused on issues such as continuity of collaboration and maintaining trust.
To categorize the companies, the empirical observations concerning both the level of relational skills and the level of the business impacts of the relationships were divided into two categories, low and high. Based on the strength and frequency of comments, the relative position in the Competence Impact (CI) typology was found for each company.

To name and describe the categories, the interview comments were grouped to observe emerging concepts and resulting higher level categories. Then, categories for 1) indifferent partners, 2) benefitting partners, 3) diversifying partners and 4) committed partners were identified. As there were no empirical observations related to the category called benefitting partners, only the three remaining categories are discussed further.

Table 6.13 highlights the characteristics associated with each category type. The text which follows discusses companies representing these category types.

Table 6.13 Different collaborative relationship characteristics

	Category I: Indifferent partner	**Category III: Diversifying partner**	**Category IV: Committed partner**
Communication	Poor level of interaction and communication	Good level of communication and information sharing	Openness, information sharing at a good level, also sensitive information is shared
Trust	Low level of trust	Selective trust	High level of trust
Objectives and values	No knowledge of common objectives	Common objectives assumed to be in line	Mutual goals and motives for collaboration
Strategic focus	Fulfilling orders and contracts, pure transactional and operational focus – meeting today's needs	Risk sharing, tactical focus	Combined service and product focus, focus on specialization, strategic focus
Supply focus	Focus on single supply		Focus on collaborative supply
Network position	Contact with TK supplier, not the end customer ("structural closure")		Straight (close) contact with end customer ("local structural hole")
Business impacts	Business impact not known, not much importance	Business impacts are vague	Clear impacts: improved competitive position, increased market share, growth in sales and turnover as well as improved quality and flexibility

The companies in category IV, committed partners, seem to have a high level of trust with their partner, openness, and focus on combining service with products, not merely on production knowhow. Companies in this category focus on specialization and thus bring their core competence for implementation on the network level. In this category, the business impacts of collaboration are most clear; collaboration is manifested in improved competitive position, increased market share, growth in sales and turnover as well as improved quality and flexibility. These companies are also in direct contact with

their customer (i.e. shipyard) – usually even on the site. Their position in the network can therefore be seen as a (local) structural hole. A structural hole position can be valuable since it provides access to resources. This position is important both when searching for new resources and when obtaining resources. Also, obtaining new information is easier in a structural hole position (Vuori, 2012).

The company in category I, indifferent partners, seems to have a low level of trust with its partner, a poor level of interaction and communication, and no common objectives. This company concentrates on production and fulfilling the orders and contracts. The case company in this category is in a direct relationship with a turnkey supplier, not the shipyard. This company's position in the network can therefore be seen as a structural closure. In this position, contacts are typically redundant.

The companies in category III, diversifying partners, seem to have good level of communication, selective trust, and common objectives are assumed to be in line. These companies share risk by operating in several lines of industry. In this category the business impacts of collaboration are vague.

The results imply that companies with better relational skills experience greater benefits from collaboration. The success, either financial or operational, of the network and its individual companies seems to depend on good relational skills, i.e. reciprocal communication between the companies, trust, common objectives, willingness to cooperate and specialization, not just on written contracts. Based on this study, the following proposition can thus be presented:

P1: The state of subcontractors' relational competence positively relates to the benefits and satisfaction gained from collaboration.

Along with outsourcing, shipyards strive to reduce the amount of contracting parties and turnkey suppliers, aiming at both risk and responsibility sharing. Thus, the ideas of forming consortiums or cooperative societies among subcontractors are presented. However, managing relations in this kind of situation is a challenge as it seems that companies with direct and close contact (similar to the structural hole position in a network) with the shipyard are more satisfied with collaboration and gain more benefits from it i.e. are more committed and willing to continue collaboration. Being close is necessary in order for relational and cognitive social capital to develop (cf. Nahapiet and Ghoshal, 1998). Therefore, the following proposition can be presented:

P2: The shipyard's (buyer's) presence and closeness positively relate to subcontractors' (suppliers´) perceived satisfaction and gained benefits.

Social relations are strengthened through collaboration and communication, i.e. social capital increases when used. Therefore, explaining a business relation merely on the

basis of RBV and TCE (i.e. elements related to contracts and access to resources) is not sufficient. Instead, describing business relations resting on SET and relational elements such as communication, common objectives, commitment, trust and desire to collaborate is also needed.

Based on the above observations and results of this study, we can argue that the relational competence of network companies should be emphasized more when choosing a business partner. We can thus claim that evaluating the competitiveness of a supply network calls for more detailed analysis of network participants' relational skills as the competitiveness of a network depends on its companies' ability to manage relationships. This study suggests that the competitiveness of a project-based supply network benefits from the network companies' good relational competence, as the success of the whole network depends on the ability of its members to manage their relations. Thus, the following proposition can be presented:

P3: The relational competence of network companies positively relates to network performance and competitiveness.

7 CONCLUSIONS AND DISCUSSION

The study was divided into five parts. Part one (Chapter 1) described the motivation for the research. In this part, the problem formulation was introduced together with the structure and the empirical context of the study. The second part (Chapter 2) concentrated on discussing the key content of supply chain collaboration and social capital as the central themes of the research. Based on this discussion, a gap in the research, i.e. the relational aspects of collaboration in a dynamic project environment, was observed. In the third part (Chapters 3 and 5), the theoretical framework of the study was introduced. The theoretical views of TCE and RBV were added to the SET approach to obtain adequate tools for studying the value potential of network relations in the project context and explaining collaboration based on relational competence. Grounded in the theoretical framework, a typology for classifying network relations was also introduced in part three. The fourth part (Chapters 4 and 6) was the empirical section, concentrating on the methods used and data collected. The empirical classification and discussion of the results were also included in this part. The fifth part (Chapter 7) includes the conclusions and discussion of the study.

This last chapter of the study reviews briefly the goals and key findings of this thesis. It discusses the initial research questions and reflects upon how this study succeeded in answering the research questions as well as fulfilling the goals (Chapter 7.1). It also reviews the quality of the research (Chapter 7.2) and the theoretical contributions and managerial implications (Chapters 7.3 and 7.4). Finally, the limitations of the study and suggestions for future research are proposed (Chapters 7.5 and 7.6).

7.1 Answering the research questions

This research is based on the argument that network competitiveness stems from network relations, as collaboration and working together strengthen competitiveness. Therefore, relational competence should be emphasized more when considering the competitiveness of a network and, for example, choosing business partners. It is suggested that evaluating the competitiveness of a supply network calls for a more detailed analysis of the relational skills of network participants. Consequently, it is also suggested that companies can be categorized based on their relational competence and the business impact of the relationships. The resulting Competence-Impact (CI) classification enables the estimation of the potential and benefits of relational

competence as well as network competitiveness and helps e.g. in choosing suppliers and in developing activities.

The problem formulation of this research is based on the challenging nature of relationship management in a network of companies. This complexity stems from the diversity of relations, abstruseness of relational competence per se, as well as the utilization of relationships in network management in practice. Considering these aspects in a dynamic environment is emphasized since, to be able to perform effectively, a company needs to consider its position in a network on a regular basis.

A typical example of a dynamic environment is a project environment in which the forming and breaking up of networks depends on a single project. In new projects, companies should be able to recognize both the antecedents and possible benefits of collaboration and the companies that integrative attempts should be focused on. The competitiveness of a network depends on its members' ability to manage relations, i.e. the ability to integrate and collaborate. Therefore, new theoretical frameworks and methods as well as the empirical testing of these methods are needed in order to clarify the impacts of network integration development and the possibilities of utilizing companies' network relations.

The focal idea in this research was to ascertain how the relational skills of network members could be described to evaluate the competitiveness and operational ability of a network better. Thus, the focus of this study was on solving the following Main Research Question (MRQ):

How can the importance of relational competence be described?

A classification typology based on relational aspects of collaboration is suggested as a solution to this main research question. The theoretical basis of this study rested on SET, TCE and RBV, leading to the idea of grounding the classification typology on two factors: relational competence and the business impacts of the relationships. Following this view, the logical, more detailed research questions (RQ1…RQ3) were generated:

RQ1: How can relational competence be analyzed?

This first research question concentrated on the social capital elements of collaboration, as SET suggests. In this context, a literature study was conducted. Based on this literature study, it was found that the three dimensions of social capital, i.e. cognitive, structural, and relational, are interrelated; they comprise the focal elements of relational

competence, and are manifested in enhanced performance. *On a theoretical basis* the answer to the first research question is that *relational competence should be analyzed by focusing on every social capital element, i.e. mutual information and knowledge sharing and communication, common objectives, and reciprocal trust between collaborating parties. On an empirical basis* the focus was on clarifying *the case companies' actual state of relational competence*. The empirical study revealed that when relational competence is high, members of a project network have mutual and effective communication, trust-based relationships, as well as mutual goals and motives for collaboration. In the same vein, when relational competence is low it means minimal information exchange, limited trust between network actors, and little knowledge of common goals. (See Figure 7.1)

The second and third research questions concentrated on the significance of relations and the business impacts of relationships.

RQ 2: What is the importance of relationships?

RQ 3: How can the business impacts of relations be analyzed?

The significance of relationships needed to be ensured to justify the overall discussion of the subject. If relations are not considered as being of any importance, there is hardly any sense in studying the level of relational skills or the impacts of relationships. *On a theoretical basis*, as RBV suggests, both parties (i.e. having access to essential resources) of a relationship are needed as alone it is not possible to achieve the same results as working together. Indeed, *relations are a significant unit of analysis for understanding competitiveness*. *On an empirical basis* the focus was on clarifying *the importance of relationships*. The empirical study revealed that *the importance of relations is manifested in punctuality, safety, and quality issues. Importance is also manifested in willingness to continue collaboration.* It was also found that shipyards are fully dependent on their subcontractors. They need the resources enabled by collaboration with subcontractors. They also emphasize safety, punctuality, and quality issues as central elements of maintaining the network and its competitiveness. On the other hand, subcontractors focus on issues such as continuity of collaboration and maintaining trust. (See Figure 7.1)

A literature study on the situational and outcome dimensions (i.e. needs and benefits) of collaboration was made to find out the context dependency of collaboration as well as the perceived benefits and business impacts. The factor of business impacts covers both financial and market outcomes. This factor contains elements such as the extent of market share, growth in sales and turnover, and the competitive situation. In addition, factors such as commitment, flexibility, and opportunism as expressions of relations are included in this construct. To conclude, *on a theoretical basis the business impacts of*

relations can be analyzed by focusing on the relationship's impact on market share, growth in sales and turnover as well as on the competitive situation. On an empirical basis the focus was on clarifying the *actual state of the business impacts of the relations*. Based on observations, it was found that companies with a higher level of relational competence experienced higher business impacts, i.e. *companies with high relational skills report better business impacts and higher satisfaction* with collaboration. In other words, success seems to be related to mutual trust, common objectives, reciprocal communication, and "collaborative spirit". It was also found that high business impact means that collaboration is seen to improve competitive position, increase market share, increase sales and turnover, improve quality and flexibility, as well as decrease control. In the same vein, low business impact means that no evidence has been detected or the business impact of collaboration is seen as negative. (See Figure 7.1)

Figure 7.1 presents the theoretical foundation, the research questions, and the respective research answers, both theoretical and empirical, of this study.

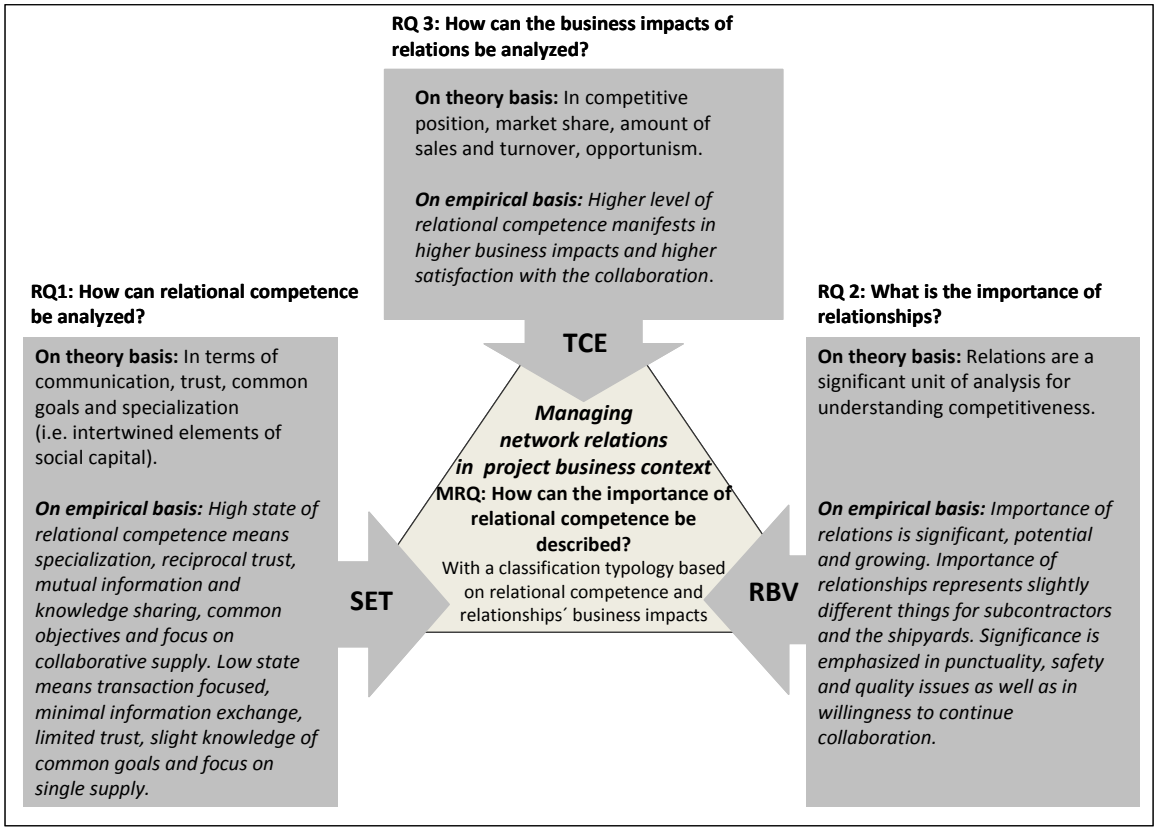

Figure 7.1 Theoretical foundation, research questions and respective research answers

As the result and answer to the main research question, *a classification typology* was developed *with two factors, i.e. relational competence and relationships' business*

impact, and *four categories* of collaborative relations. The categories are: *1) indifferent partners, 2) benefitting partners, 3) diversifying partners and 4) committed partners*, each representing a specific state of relational competence and relationships' business impact.

In the studied case, subcontractor networks are a significant part of a shipyard's business due to the focus on core competencies and outsourcing (approximately 70-80 % of the project) to other sectors. At the same time, the complexity of projects has increased and the role of a shipyard as the main project coordinator has been emphasized. In practice, the shipyard offers its subcontractors and turnkey (TK) suppliers the premises on which to build and assemble the end product. The success of the shipyard – as well as that of the whole network – depends on the success of the project network in its entirety.

The purpose of this research was to describe the importance of relational competence to understand its role better in network competitiveness in a project context. To achieve this main objective, a classification typology was developed based on the relational skills of network companies. The developed two-by-two matrix helps managers and academics understand the inter-related nature of relational competence and business impacts. The typology can be applied to enhance relationship management and to improve evaluation of the operational ability and competitiveness of a network, especially from the social capital viewpoint.

As Lusch et al. (2010) point out, a network is held together by valuable resources that center on the competences, relationships and information shared between network members. This study concentrated on network companies' relational skills and the impact of relationships on business outcomes to assess the competitiveness of a project network better. The objective of the thesis was to gain substantive understanding in a new context, i.e. to improve understanding of the importance of the relational aspects of collaboration in the project environment and further, to enhance the management of network relations in a project context.

The categorization presented in this study helps in evaluating network competitiveness, as for example for the shipyards it indicates the subcontractors' stage of development compared to the shipyards' own objectives. The categorization helps in managing network relations by implying which subcontractor is an additional resource (indifferent partner) of a certain area of knowhow to help in leveling the fluctuation, which must be asked for bids (diversifying partner), and which represents real partnership and a base for long-term development (committed partner). We suggest that apart from price shipyards should look at the fluency of collaboration – especially if a long-term partner is called for. Merely focusing on cost or price is not the best option as smooth

collaboration increases gains. The typology helps to recognize partners with good relational skills.

To describe the importance of relational competence a novel conceptual model was developed to help evaluate both theoretically and empirically the state and potential of a company to operate in a network. Based on the findings of this study relational competence is analyzed by focusing on every social capital element. Also Carey et al. (2011) and Tsai and Ghoshal (1998) have presented the reciprocal connection between social capital dimensions and their role as the elements of relational competence. Tsai and Ghoshal (1998) also provide empirical support for Nahapiet and Ghoshal´s (1997) framework relating social capital to value creation in organizations. The categorization developed in this study adds to the previous research as relational aspects of collaboration have not been the focus of categorization earlier, especially not in project context (cf. Giunipero et al., 2008; Segerstedt and Olofsson, 2010).

The study confirms that relations are a significant unit of analysis for understanding competitiveness. Evidence of building collaboration also on relational aspects was gained and companies with most collaborative and committed relations were found to have the most significant business impacts. This is in line with the findings by Walter et al. (2001) and Min et al. (2005) suggesting that collaboration and engaging in business relations are the focal means to create value and to strengthen competitiveness. The study also supports findings by Nyaga et al. (2010) arguing that relational aspects such as trust and commitment lead to improved satisfaction and performance. As Hardy et al. (2003) state, companies engage in collaboration to develop, maintain, and enhance supply chain capabilities that contribute to enhancing company performance and competitiveness. Also Power (2005) argues that the requirement to develop and maintain collaborative relationships is a potential source of competitiveness. According to Mesquita et al. (2008) and Bleeke et al. (1993) the competitiveness of a business network depends on its members´ capability to manage relations.

The findings of this study also point out that companies with high relational skills report better business impacts and higher satisfaction with collaboration. This is in line with the studies by Krause et al. (2007) and Lawson et al. (2008) stating that building social capital is important for achieving benefits in an inter-organizational relationship. This study is also in line with the statements by Dyer and Nobeoka (2000), Heide and Miner (1992), Uzzi (1997) and Lawson et al. (2008) emphasizing frequent inter-organizational interactions as an enabler of close ties that incentivize the exchange of sensitive information and the formulation of common strategies leading to strategic benefits. Also Autry and Golicic (2010) emphasize the focal role of relational capital in supply chain relations. According to their model, relationship strength influences performance and then higher performance increases the strength of the relationship. This is comparable

with the findings here that companies with high relational skills experience better business impacts and higher satisfaction with collaboration.

7.2 Assessment of the research

The research material based on the case of a Finnish maritime industry network was suitable to help in enhancing the understanding of the role of relational aspects of collaboration in a project context. Two principles were applied when choosing the cases: 1) the case network was chosen as it can be regarded as a typical representative of a project industry with focal objectives of specialization and networking and emphasis on the need for managing relations; 2) the individual case companies represent examples of different types: some of the companies want to become turnkey suppliers, some want to become an active part of the network, some want to strengthen their present position, and some are looking for other opportunities.

The research process in this study follows the five-stage research process for case studies put forth by Stuart et al. (2002). The criteria for assessing the quality of a case study are shown in Table 4.1. First, the theoretical aim of the study was stated. Then, the case selection was made. Here, multiple cases were used to increase the validity of the research and to allow the development of a richer theoretical framework. The cases were purposively selected to control the variation better and to improve generalizability. In stage three, the data was gathered using semi-structured conversational in-person interviews and secondary data such as documents/websites/publications. In stage four, the data was analyzed using transcription and software. The evolving classification and interpretations were also reviewed and approved by the respondents via a feedback inquiry.

In stage five, the quality of the research at hand was ensured. The research process was presented (Figure 4.2) to ensure the validity and reliability of the research (cf. Seuring, 2008). Multiple sources of evidence (i.e. interviews, seminars, publications, feedback inquiries) were used to enhance the construct validity and reliability of the study (cf. Yin, 2003). Multiple respondents (in this case 13 interviewees in ten case companies) were used, enabling the capture of a variety of perceptions and meanings, which is vital to the understanding of complex business relations, such as relational aspects of network collaboration in the project business context (cf. Dubois and Araujo, 2007). Finally, interview bias was limited by having numerous and highly knowledgeable interviewees (i.e. CEOs and managers with several years of work experience in the industry), who viewed the focal phenomena from diverse perspectives (cf. Eisenhardt and Graebner, 2007).

According to Giunipero et al. (2008), grounded theory (GT) can be used as a research methodology to ascertain the rigor of qualitative research, which was also the case here.

To ensure the rigor of this study, all the five stages of an inductive research process, i.e. research question definition, instrument development, data gathering, data analysis, and dissemination, put forth by Stuart et al. (2002), have been considered (see Chapter 4.1.1).

In addition to the five stages of the research process mentioned above, the quality criteria of GT research, i.e. credibility, dependability, confirmability, and transferability, were presented. As discussed in Chapter 4.1.3, for credibility, an appropriate and relevant research design was applied. For dependability, case companies varying in type, size, and business conditions were included in this study. For confirmability, involvement of the researcher to provide further information during the interview was applied. Also, a feedback questionnaire for participants was conducted to present the results and interpretations of the interviews. For transferability, the research design and method was followed consistently to provide a sufficient database to make transfer possible. According to Kaufmann and Denk (2011), both theoretical and managerial implications must be clearly outlined. However, it is not the researcher's task to transfer the findings to other contexts.

7.3 Theoretical contributions

Applying social exchange theory (SET) in a project context and introducing a novel typology of project business relations based on the relational aspects of collaboration, i.e. creating a classification typology (including axes, categories, and characteristics) based on a theoretical framework, is the main theoretical contribution of this research. This study also makes a theoretical contribution by exploring the essence and impact of the relational aspects of collaboration in the project business context. The findings extend the current SCI literature by providing a new typology for the classification, development, and management of supply network relations.

In this study, SET was used to gain a better understanding of dyadic network relations in a project context. According to SET, the essential elements of collaboration are mutual information sharing, common goals and motives as well as reciprocal trust between the actors. A high level of relational competence was also central in explaining the business outcomes that were experienced. The study also makes a theoretical contribution to the understanding of value creation mechanisms in project-based network relations. These results can be utilized in managing network relations to enable better value creation and the competitiveness of a network.

It is not enough to understand the importance of a relationship (based on the availability of resources as RBV suggests) as well as the benefits from it (based on lower transaction costs as TCE requires). To be able to manage relations and a network

formed by relations successfully, the structure and the state of the relationships also need to be understood (based on the behavior of social systems as assumed by SET). This study complements previous research by bringing SET to bear on SCI analysis in a project context.

Evidence from the case project network demonstrates that collaboration is built on relational aspects such as communication, trust, and shared values – not just on formal contracts or availability of resources. Furthermore, companies with higher levels of relational competence experience more benefits from collaboration. In other words, RBV and TCE alone explain successful collaboration in too unrefined a way.

This study demonstrates that network relations transmit the impact of the relational aspects of collaboration on network partners' (experienced) business outcomes. The study also indicates that, in the project environment too, the impact of relational competence and relationships can be seen in business outcomes and that relational aspects positively affect value formation, as asserted by SET.

7.4 Managerial implications

The empirical objective of this study was to explore the state and the impacts of using the relational skills of project-oriented network companies. The Competence Impact (CI) model that was created is useful in evaluating the competitiveness of a network and the level of relational skills of individual companies. The typology presents a company's relative position in the CI area compared to other companies in the same network, thus offering new knowledge on the operational ability of a project network and enabling better management of network relations in the project business environment. The typology helps in evaluating the potential and benefits of relational competence in project network collaboration. The model can be used, e.g. when selecting suppliers or R&D partners and in developing and prioritizing ways of operation. Managers should consider that the success of the whole network depends on the ability of each single member to manage their relations.

From this study it came to the fore that all the aspects of social capital should be considered when evaluating relational competence. Reciprocal communication, mutual trust, and common objectives are all intertwined, they cannot be separated, and together form the factor called relational competence. For decision makers this means that companies should put efforts into developing all the intertwined aspects of social capital in order to gain maximum benefits from collaboration. This study also implies that companies with higher levels of relational competence experience enhanced business benefits and satisfaction in collaboration. The network's performance improves as its members' relational competence and ability to manage relations reach a good level.

Also, selecting the right people in the right places should be considered: a person in a link position between two organizations should have good relational skills and the willingness to use them.

It also appeared that network relations were found significant, not to say indispensable, from the shipyard viewpoint. However, the importance of the relationship stood for slightly different things for subcontractors and shipyards: Representatives of the shipyards highlighted the maintaining or developing of competitive skills and resources whereas the subcontractors emphasized developing the business through presence and collaboration with the cooperating partner. For shipyards, network competitiveness and resources are a necessity. The shipyards also seek to simplify the network by focusing solely on TK suppliers, thus leading to consortiums or cooperative societies formed by subcontractors. However, for subcontractors the presence of the partner as well as developing the business in collaboration are important. This needs to be considered so that subcontractors are not left "alone", especially when fewer TK suppliers are utilized leading to fewer direct contacts between shipyards and subcontractors.

In addition, it was found that companies with a higher level of relational competence experience higher business impacts and higher satisfaction with collaboration. This means that success is, at least to some extent, related to mutual trust, common objectives, reciprocal communication, and "collaborative spirit". The findings of this study present an outlook of the current situation of subcontractors in the studied project business network. This classification enables companies to compare their own situation to that of others and also to consider the possible target level and the related and required actions to achieve that position.

Based on the results, the shipyards should, in their role as the main project coordinator, regard the management of relations towards subcontractors as being close, enabling social capital to develop and that when it is used (through collaboration and communication), social capital will increase. A high level of relational competence is observed to be manifested in increased satisfaction, commitment, and willingness to continue collaboration. All this is important for the competitiveness and performance of the network and therefore, in addition to being a main project coordinator, a shipyard should also strive to be a main social capital (or relationship) coordinator, a "relationship broker".

For subcontractors, a position in CI typology category I (indifferent partners) means that in order to lower transaction costs and gain more business benefits, the company needs to invest more in information and knowledge sharing to enhance trust and further to decrease opportunism. For companies in category I, investing in improving relational skills might enable better benefits from collaboration. A position in CI typology category IV (committed partners) means a supreme opportunity to utilize the

competitiveness enabled by resources. Gaining new information is also easier for companies in this category, due to their close and trusting relationship with their partner. Companies benefitting from collaboration (category IV) probably want to preserve the situation by keeping relational skills at a good level.

For shipyards, this categorization indicates the subcontractors' stage of development compared to the shipyards' objectives. A company in category I (indifferent partner) can be seen as an additional resource of a certain area of knowhow to help in leveling out fluctuation. A company in category III (diversifying partner) works on a win-win principle and must be asked for bids. Companies in category IV (committed partners) represent the closest to a real partnership and a base for long-term development taking into account both subcontractor's and shipyard's views. Above price, shipyards should look at the fluency of collaboration – especially if a long-term partner is called for. Merely focusing on cost or price is not the best option as the smoothness of collaboration increases gains. As Cousins et al. (2008b) state, close links between buyer and supplier are a critical differentiator of high and low performers in global supply chains.

There were no empirical observations related to the upper left category representing a low level of relational competence and yet notable business impacts. The absence of observations in this category is quite clear, as all the participants of this study had consciously been developing their operations as potential subcontractors in the network and therefore this kind of opportunistic position would have been rather exceptional. The participating companies were selected and they also recognized the opportunities of network collaboration.

The lesson for managers is that companies with good relational competence benefit more from collaboration. In other words, success seems to depend on the intensity of utilizing relational skills, on inter-organizational communication, trust, common goals, and willingness to cooperate. Thus, it can be suggested that improving relational skills and competence enables enhanced benefits from collaboration, i.e. a company will get more out of acting as a subcontractor for the shipyard.

Given the empirical context in this research of the Finnish maritime industry, the results are of interest to maritime industry companies operating both in Finland and also abroad. The maritime industry is one of the most international industries in Finland and the role of supply network management, as well as the issue of managing relations, is highly significant in the industry. Based on research observations we can conclude that in its entirety, the case network's competitiveness and ability to function is quite good.

Table 7.1 presents suggestions of how the results could be generalized in different areas.

Table 7.1 Suggested generalization of the results

Results	Method	Suggested generalization
Importance of considering all the aspects of social capital when evaluating the relational competence of network partners	Conceptual study	Any network
Evidence of building collaboration on relational aspects also in the project context	Case study	Any project context
Novel typology of project business relations	Conceptual analysis Case study	Any project network
Relationship between relational competence and business impacts	Conceptual analysis Case study	Any collaborative network

Based on the conceptual study, the importance of considering all the social capital elements when evaluating the relational competence is emphasized and probably applies in any other network too. Evidence from the case network demonstrates that collaboration is built on relational aspects – probably in any other project network as well. The classification typology is applicable in any project network and the business impacts of relational competence can be detected in any collaborative network too.

7.5 Limitations of the study

According to Daugherty (2011), relationships present a fascinating and dynamic research area with many challenges: creating theory-driven models to guide the research; maintaining analytical and methodological rigor; convincing people to fill out the surveys; extending the research to look at dyadic, triadic and network-wide relationships; effectively utilizing qualitative research methods; and conducting research that is managerially relevant and adds value to businesses.

In addition to the above-mentioned challenges, this study – like all research – has some limitations that need to be discussed.

First, this study deals with many complex issues such as collaboration, the project business, and social capital. The complexity of the main concepts is bound to have an effect on the research. *Second*, the focus in this study was on inter-organizational relations, yet people were the sources of information. Limiting the examination of relational skills merely to an organizational or personal level was seen as challenging, if not impossible: people constitute organizations and people experience the relations between organizations and persons. *Third*, one source of uncertainty might be the fact that respondents' views are always subjective. The knowledge and involvement of the respondents (i.e. key informants) in the ability to report validity has been questioned, by

for instance Philips (1981). On the other hand, others (cf. Brown et al., 1993) have argued that a single, reliable informant is preferred over multiple respondents with varying familiarity with the phenomenon. In this research the interviewees were all knowledgeable persons in high positions and with several years of work experience in the field and can therefore be seen as reliable informants. *Fourth*, this study has a limited number of cases; therefore it does not provide a statistical generalization to a broader population. Nevertheless, there are findings that may be useful to broad segments of firms. *Fifth*, the classification typology in this study was generated based on SET, TCE, and RBV. Other theories, i.e. social network theory (cf. Laumann et al., 1978; Coleman, 1990; Burt, 1992) or the relational view might also have been possible.

A social network is a map of all the relevant ties between the nodes (e.g. companies) being studied. The network can be used to determine the social capital of individual actors. Here, the network structure was viewed by considering the structural hole and closure positions of the network members as well as presenting the studied network in a map of the companies (nodes) and ties being studied (Figure 4.3).

The relational view (cf. Dyer and Singh, 1998; Lavie, 2006) offers a usable theoretical perspective to examine and explore value-creating linkages between organizations. The relational view considers the dyad or network (i.e. relationships between firms) as the unit of analysis (as was done also in this research) and the supernormal profits (jointly generated through joint specific contributions of specific alliance partners) to be associated with the dyad or network. The relational view is complementary to RBV but, however, it differs somewhat in that whereas RBV explains superior returns through the combination of different companies, the relational view argues that idiosyncratic inter-company linkages are a source of relational rents.

However, as this study has its origins in SCM, there was no need to discard the traditional theories of TCE and RBV in SCI analysis. Instead, these theories were complemented by the SET point of view.

7.6 Suggestions for future research

Some opportunities for future research arose during this research process. In addition to this study on managing network relations in a project context from the perspective of social capital, there are still many research gaps in this area.

Firstly, further research could focus on examining the strength of correlation or the causality of relations between relational competence and the benefits of collaboration. *Secondly*, focusing on the "dark side" of social capital in relationships would be worth studying as social capital may also have significant negative consequences, for example waste of resources, loss of objectivity, increased opportunistic behavior, some

objectives may be harmful, the received information might be too limited, developing and maintaining the contacts and activities may be expensive. *Thirdly*, conducting a longitudinal study concerning the changes in collaboration-related factors and relationships would be of interest. *Fourthly*, research could be aimed at the impact of a company's network position on the level of relational competence and further, the benefits of collaboration a company gains. *Fifthly*, applying the developed framework to a specific subject, for instance the contract process and the importance and effects of relational competence in it, would be of interest.

REFERENCES

Adler, P.S., Kwon, S-W. 2002. “Social capital: prospects for a new concept”, The Academy of Management review, Vol. 27 No.1 pp. 17-40

Amit, R., Schoemaker, P. 1993. “Strategic assets and organizational rent”, Strategic Management Journal, Vol. 14 pp. 33-46

Anderson, J.C., Narus, J.A. 1990. “A model of distributor firm and manufacturer firm working partnerships”, Journal of Marketing, Vol. 54 pp. 42-58

Argyres, N.S., Liebeskind, J.P. 1999. “Contractual commitments, bargaining power and governance inseparability: Incorporating history into transaction cost theory“, Academy of Management Review, Vol. 24 No. 1 pp. 49-63

Artto, K., Martinsuo, M., Kujala. J. 2006 (2nd ed.) Projektiliiketoiminta. WSOY, Helsinki.

Autry, C.W., Golicic, S.L. 2010. “Evaluating buyer-supplier relationship-performance spirals: a longitudinal study”, Journal of Operations Management, Vol. 28 No. 2 pp. 87-100

Bagchi, P.K., Chun Ha, B., Skjoett-Larsen, T., Soerensen, L.B. 2005. "Supply chain integration: a European survey", International Journal of Logistics Management, Vol. 16 No. 2, pp. 275-294

Bagchi, P., Skjoett-Larsen, T. 2002. “Organizational integration in supply chains: A contingency approach”, Global Journal of Flexible Systems Management, Vol. 3 No. 1 pp.1-10

Bankvall, L., Bygballe, L.E., Dubois, A., Jahre, M. 2010. “Interdependence in supply chains and projects in construction”, Supply Chain Management: An International Journal, Vol. 15 No. 5 pp. 385-393

Barber, E. 2008. “How to measure the “value” in value chains”, International Journal of Physical Distribution & Logistics Management, Vol. 38 No. 9 pp. 685-698

Barney, J. 1991. “Firm resources and sustained competitive advantage”, Journal of Management, Vol. 17 pp. 99-120

Barney, J.B. 1991. “Is the resource-based “view” a useful perspective for strategic management research? Yes”, The Academy of Management Review, Vol. 26 No. 1 pp. 41-56

Barratt, M., Choi, T.Y., Li, M. 2011. “Qualitative case studies in operations management: trends, research outcomes and future research implications”, Journal of Operations Management, Vol. 29 No. 4 pp. 329-342

Barratt, M. 2004. “Understanding the meaning of collaboration in the supply chain”, Supply Chain Management: An International Journal, Vol. 9 No. 1 pp. 30-42

Beach, R., Webster, M., Campbell, K.M. 2005. “An evaluation of partnership development in the construction industry”, International Journal of Project Management, Vol. 23 No. 8 pp. 611-621

Bernard, H.R. 1994. “Research methods in anthropology: qualitative and quantitative approaches”, Altamira Press, Landham

Bititci, U.S., Martinez, V., Albores, P., Parung, J. 2004. “Creating and managing value in collaborative networks”, International Journal of Physical Distribution & Logistics Management, Vol. 34 No. ¾, pp. 251-268

Black, C., Akintoye, A., Fitzgerald, E. 2000. “An analysis of success factors and benefits of partnering in construction”, International Journal of Project Management, Vol. 18 No. 6 pp. 423-434

Blankenburg Holm, D., Eriksson, K., Johansson, J. 1996. ”Business networks and cooperation in international business relationships”, Journal of International Business Studies, Vol. 27 No 5 pp. 1033-1053

Blau, P.M. 1964. “Exchange and power in social life”, Wiley, New York

Blau, P.M. 1986. “Exchange and power in social life”, 8th ed., New Brunswick, NJ: Transaction Publishers

Bleeke, J., Ernst, D. 1993. “Collaborating to compete”, New York: John Wiley and Sons.

Bourdieu, P. 1986. “The forms of capital” in J. G. Richardson (Ed.), Handbook of theory and research for the sociology of education. pp. 241–258, New York: Greenwood Press

Bowersox, D.J. 1989. “Logistics in the integrated enterprise”, paper presented at the Annual Conference of the Council of Logistics Management, St Louis, MO.

Breite, R., Koskinen, K.U. 2010 “The knowledge transfer typology for the relationships of the supply chain”, International Journal of Integrated Supply Management, Vol. 5 No. 3 pp. 284-298

Brito, C., Roseira, C. 2007. “Towards a multi-dimensional approach to supply management: a comparative case study”, Journal of Business & Industrial Marketing, Vol. 22 No. 1 pp. 72-79

Brown, T.J., Churchill Jr, G.A., Peter, J.P. 1993. “Improving the measurement of service quality”, Journal of retailing, Vol. 69 No.1 pp. 127-139

Burt, R.S. 1992. “Structural holes: the social structure of competition”, Harvard University Press, Cambridge, 313 p.

Bygballe, L.E., Jahre, M., Swärd, A. 2010. “Partnering relationships in construction: a literature review”, Journal of Purchasing & Supply Management, Vol. 16 pp. 239-253

Capaldo, A. 2007. “Network structure and innovation: the leveraging of a dual network as a distinctive relational capability”, Strategic Management Journal, Vol. 28 pp. 585–608

Carey, S., Lawson, B., Krause, D.R. 2011. “Social capital configuration, legal bonds and performance in buyer-supplier relationships”, Journal of Operations Management, Vol. 29 pp. 277-288

Carter, C.R., Dresner, M. 2001. “Purchasing’s role in environmental management: cross-functional development of grounded theory”, Journal of Supply Chain Management, Vol. 37 No. 3 pp. 12-27

Cetindamar, D., Çatay, B., Basmaci, S. 2005. "Competition through collaboration: insights from an initiative in the Turkish textile supply chain", Supply Chain Management: An International Journal, Vol. 10 No. 4, pp. 238-240

Chandra, C., Kumar, S. 2001. “Enterprise architectural framework for supply chain integration”, Industrial Management & Data Systems, Vol. 101 No. 6 pp. 290-303

Charmaz, K., Bryant, A. 2010. “The SAGE Handbook of Grounded Theory”, SAGE Publications

Chen, I.J., Paulraj, A. 2004. “Understanding supply chain management. Critical research and a theoretical framework”, International Journal of Production Research, Vol. 42 No. 1 pp. 131-163

Chen, W.T., Chen, T-T. 2007. “Critical success factors for construction partnering in Taiwan”, International Journal of Project Management, Vol. 25 No. 5 pp. 475-484

Coase, R.H. 1937. “The nature of the firm”, Economica, New Series, Vol. 4 No. 16 pp. 386-405

Coleman, J.S. 1988. “Social capital in the creation of human capital”, American Journal of Sociology, Vol. 94 pp. 95-120

Coleman, J.S. 1990. “Foundations of social theory”, Cambridge, MA: Harvard University Press

Cooper, M.C., Ellram, L.M. 1993. "Characteristics of supply chain management and the implications for purchasing and logistics strategy", International Journal of Logistics Management, Vol. 4 No. 2, pp. 13-24

Cooper, M.C., Ellram, L.M., Gardner, J.T., Hanks, A.M. 1997a. “Meshing multiple alliances”, Journal of Business Logistics, Vol. 18 No. 1 pp. 67-89

Cooper, M.C., Lambert, D.M., Pagh, J.D. 1997b. “Supply chain management: more than a new name for logistics”, International Journal of Logistics Management, Vol. 8 No. 1 pp. 1-14

Corsten, D., Felde, J. 2005. “Exploring the performance effects of key-supplier collaboration: an empirical investigation into Swiss buyer-supplier relationships”, International Journal of Physical Distribution and Logistics Management, Vol. 35 No. 6 pp. 445-461

Cousins, P.D., Handfield, R.B., Lawson, B., Petersen, K.J. 2006. “Creating supply chain relational capital: the impact of formal and informal socialization processes”, Journal of Operations Management, Vol. 26 No. 6 pp. 851-863

Cousins, P., Lamming, R., Lawson, B., Squire, B. 2008a. “Strategic supply management: principles, theories and practice”. 308 p. Pearson Education

Cousins, P.D., Lawson, B., Squire, B. 2008b. "Performance measurement in strategic buyer-supplier relationships: The mediating role of socialization mechanisms", International Journal of Operations & Production Management, Vol. 28 No. 3, pp. 238-258

Cousins, P.D., Menguc, B. 2006a. “Creating supply chain relational capital. The impact of formal and informal socialization processes”, Journal of Operations Management Vol. 24 No. 6 pp. 851-863

Cousins, P.D., Menguc, B. 2006b. “The implications of socialization and integration in supply chain management”, Journal of Operations Management, Vol. 24 No. 6 pp. 604-620

Cropanzano, R., Mitchell, M.S. 2005. “Social exchange theory: an interdisciplinary review”, Journal of Management, Vol. 21, pp. 874-900

Currall, S.C., Judge, T.A. 1995. “Measuring trust between organizational boundary role persons”, Organizational Behavior and Human Decision Processes, Vol. 64 No. 2 pp. 151-170

Das, T.K., Teng, B-S. 2000. “A resource-based theory of strategic alliances”, Journal of Management, Vol. 26 No. 1 pp. 31-61

Das, T.K., Teng, B-S. 1998. “Between trust and control: developing confidence in partner cooperation in alliances”, Academy of Management Review, Vol. 23 No. 3 pp. 491-512

Das, A., Narasimhan, R., Talluri, S. 2006. ”Supplier integration - finding an optimal configuration”, Journal of Operations Management, Vol. 24 No. 5 pp. 563-582
Daugherty, P.J. 2011. “Review of logistics and supply chain relationship literature and suggested research agenda”, International Journal of Physical Distribution & Logistics Management, Vol. 41 No. 1 pp. 16-31
Defee, C.C., Williams, B., Randall, W.S., Thomas, R. 2010. "An inventory of theory in logistics and SCM research", International Journal of Logistics Management, Vol. 21 No. 3, pp. 404-489
Dietrich, P., Eskerod, P., Dalcher, D. and Sandhawalia, B. 2010. “The dynamics of collaboration in multipartner projects”, Project Management Journal, Vol. 41 No. 4 pp. 59-78
Day, G.S. 2000. “Managing marketing relationships”, Journal of the Academy of Marketing Science, Vol. 28 No. 1 pp. 24-30
Dey, I. 2003. “Qualitative Data Analysis: A user-friendly guide for social scientists”, 294 p. Routledge
Dodgson, M. 1993. “Learning, Trust, and Technological Collaboration”, Human Relations, Vol. 46, pp. 77-95
Dubois, A., Araujo, L. 2007. “Case research in purchasing and supply management: Opportunities and challenges”. Journal of Purchasing and Supply Management, Vol. 13 No. 3 pp. 170-181
Dwyer, R.F., Schurr, P.H., Oh, S. 1987. “Developing buyer-seller relationships”, Journal of Marketing, Vol. 51 No. 2 pp. 11-27
Dyer, J.H. 1997. “Effective interfirm collaboration: How firms minimize transaction costs and maximize transaction value”, Strategic Management Journal, Vol. 18 No. 7 pp. 535-556
Dyer, J.H., Chu, W. 2003. “The Role of Trustworthiness in Reducing Transaction Costs and Improving Performance: Empirical Evidence from the United States, Japan, and Korea, Organization Science, January/February 14 pp. 57-68
Dyer, J.H. and Hatch, N.W. 2006. “Relation-specific capabilities and barriers to knowledge transfers: creating advantage through network relationships”, Strategic Management Journal, Vol. 27 No. 8 pp. 701-719
Dyer, J. H., Nobeoka, K. 2000. “Creating and managing a knowledge-sharing network: the Toyota case”, Strategic Management Journal, Vol. 21 pp. 345-367
Dyer, J.H., Singh, H. 1998. “The relational view: Cooperative strategy and sources of interorganizational competitive advantage”, The Academy of Management Review, Vol. 23 No. 4 pp. 660-679
Eisenhardt, K.M. 1989. “Building theories from case study research”, The Academy of Management Review, Vol. 14 No. 4 pp. 532-550
Eisenhardt, K.M., Graebner, M.E. 2007. “Theory building from cases: opportunities and challenges”, Academy of Management Journal, Vol. 50 No. 1 pp. 25-32
Ellram, L.M. 1991. "Supply-Chain Management: The Industrial Organisation Perspective", International Journal of Physical Distribution & Logistics Management, Vol. 21 No. 1, pp. 13-22
Ellram, L. 1996. “The use of the case study method in logistics research”, Journal of Business Logistics, Vol. 17 No. 2 pp. 93-138
Ellram, L.M., Carr, A. 1994. “Strategic purchasing: a history and review of the literature”, International Journal of Purchasing and Materials Management, Vol. 30 No. 2 pp. 10-18

Ellram, L.M., Cooper, M.C. 1990. “Supply chain management, partnerships and the shipper-third-party relationship”, International Journal of Logistics Management, Vol. 1 No. 2 pp. 1-10

Emberson, C., Storey, J. 2006. “Buyer-supplier collaborative relationships: beyond the normative accounts”, Journal of Purchasing and Supply Management, Vol. 12 No. 5 pp. 236-245

Emerson, R.M. 1976. “Social exchange theory”, Annual Review of Sociology, Vol. 2 pp. 335-362

Emerson, R.M. 1987. “Toward a theory of value in social exchange” In K. Cook (Ed.), Social exchange theory: 11-46. Beverly Hills, CA: Sage

Eriksson, P., Kovalainen, A. 2008. “Qualitative methods in business research”, Sage, London

Fabbe-Costes, N., Jahre, M. 2007. “Supply chain integration improves performance: the Emperor's new suit?”, International Journal of Production and Distribution Management, Vol. 37 No. 10 pp. 835-855

Fabbe-Costes, N., Jahre, M. 2008. “Supply chain integration and performance: a review of the evidence”, International Journal of Logistics Management, Vol. 19 No. 2 pp. 130-154

Fawcett, S.E, Magnan, G.M., McCarter, M.W. 2008a. “A three-stage implementation model for supply chain collaboration”, Journal of Business Logistics, Vol. 29 No. 1 pp. 93-112

Fawcett, S.E., Magnan, G.M., McCarter, M.W. 2008b. "Benefits, barriers, and bridges to effective supply chain management", Supply Chain Management: An International Journal, Vol. 13 No. 1, pp. 35-48

Fawcett, S.E., Magnan, G.M. 2002. “The rhetoric and reality of supply chain integration”, International Journal of Physical Distribution & Logistics management, Vol. 32 No.5 pp. 339-361

Finnish Maritime Society, www.meriteollisuus.fi [visited 24.10.2012]

Flynn, B.B., Huo, B., Zhao, X. 2010. “The impact of supply chain integration on performance: A contingency and configuration approach”, Journal of Operations Management, Vol. 28 pp. 58-71

Frohlich, M.T., Westbrook, R. 2001. “Arcs of integration: an international study of supply chain strategies”, Journal of Operations Management, Vol. 19 pp. 185-200

Frohlich, M.T., Westbrook, R. 2002. “Demand chain management in manufacturing and services: web-based integration, drivers and performance”, Journal of Operations Management, Vol. 20 (6) pp. 729-745

Fugate, B., Sahin, F., Mentzer, J.T. 2006. “Supply chain management coordination mechanisms”, Journal of Business Logistics, Vol. 27 No. 2 pp. 129-161

Fugate, B.S., Mentzer, J.T., Flint, D.J. 2008. “The Role of Logistics in Market Orientation”, Journal of Business Logistics, Vol. 29 No. 2, pp. 1-26

Gadde, L.-E., Håkansson, H. 1994. “The changing role of purchasing - reconsidering three strategic issues”, European Journal of Purchasing and Supply Management Vol. 1 No. 1, pp. 38-45

Gadde, L., Huemer, L., Håkansson, H. 2003. “Strategizing in industrial networks”, Industrial Marketing Management, Vol. 32 No. 5 pp. 357-364

Germain, R., Iyer, K.N.S. 2006. “The interaction of internal and downstream integration and its association with performance”, Journal of Business Logistics, Vol. 27 No 2, pp. 29-52

Gimenez, C. 2006. “Logistics integration processes in the food industry”, International Journal of Physical Distribution and Logistics Management, Vol. 36 No.3 pp. 231-249

Giménez, C., Ventura, E. 2003. “Supply Chain Management as a Competitive Advantage in the Spanish Grocery Sector”, International Journal of Logistics Management, Vol. 14 No. 1, pp. 77-88

Giunipero, L.C., Hooker, R.E., Joseph-Matthews, S., Yoon, T.E., Brudvig, S. 2008. “A decade of SCM literature: past, present and future implications”, Journal of Supply Chain Management, Vol. 44 No. 4 pp. 66-86

Glaser, B.G. 1992. “Basics of grounded theory analysis: emergence vs. forcing”, Sociology Press, Mill Valley, CA.

Glaser, B.G., Holton, J. 2004. “Remodeling grounded theory”, Forum: Qualitative Social Research, Vol. 5 No. 2 pp. 1-17

Goulding, C. 2001. “Grounded theory: a magical formula or a potential nightmare”, Marketing Review, Vol. 2 No. 1 pp. 21-34

Granovetter, M. 1973. “The strength of weak ties”, American Journal of Sociology, 78, pp. 1360-1380

Granovetter, M. 1985. “Economic action and social structure: the problem of embeddeddness”, American Journal of Sociology, Vol. 91 No. 3 pp. 481-510

Granovetter, M. 1992. “Problems of explanation in economic sociology” pp. 29-56 in Networks and Organization edited by Nitin Nohria and Robert G. Eccles. Boston, MA: Harvard Business School Press

Griffith, D.A., Harvey, M.G., Lusch, R.F. 2006. “Social exchange in supply chain relationships: the resulting benefits of procedural and distributive justice”, Journal of Operations Management, Vol. 24 No. 2 pp. 85-98

Gulati, R. 1995. “Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances”, Academy of Management Journal, Vol. 38 No. 1 pp. 85-112

Gulati, R., Nohria, N., Zaheer, A. 2000. “Strategic networks”, Strategic Management Journal, 21 (Special issue), pp. 199–201

Gulati, R., Kletter, D. 2005. “Shrinking core, expanding periphery: the relational architecture of high-performing organizations”, California Management Review, Vol. 47 No. 3 pp. 77-104

Göthlich, S.E., Wenzek, H.R. 2005. “Underlying principles of business ecosystems“, In T.Theurl and E.C. Meyer (Eds.). Strategies for cooperation, Aachen

Hallikas, J., Karvonen, I., Pulkkinen, U., Virolainen, V. M., Tuominen, M. 2004. ”Risk management processes in supplier networks”, International Journal of Production Economics, Vol. 90 No. 1, pp. 47-58

Hallikas, J., Virolainen, V. M. 2004. ”Risk management in supplier relationships and networks”, Supply Chain Risk, Hampshire and Burlington, pp. 43-65

Hallikas, J., Puumalainen, K., Vesterinen, T., Virolainen, V. M. 2005. ”Risk-based classification of supplier relationships”, Journal of Purchasing and Supply Management, Vol. 11 No. 2, pp. 72-82

Hammersley, M. 1992. “Deconstructing the qualitative-quantitative divide”, Brannen, J. (ed.) in Mixing methods: qualitative and quantitative research, Avebury, Aldershot, pp. 39-56

Handfield, R.B., Bechtel, C. 2002. “The role of trust and relationship structure in improving supply chain responsiveness”, Industrial Marketing Management, Vol. 31, pp. 367-82

Handfield, R.B., Bechtel, C. 2004. “Trust, power, dependence, and economics: can SCM research borrow paradigms?”, International Journal of Integrated Supply Management, Vol. 1 No. 1 pp. 3-32

Hardy, C., Phillips, N., Lawrence, T.B. 2003. “Resources, knowledge and influence: the organizational effects of interorganizational collaboration”, Journal of Management Studies, Vol. 40 No. 2 pp. 321-347

Harland, C.M. 1996. “Supply chain management: relationships, chains and networks”, British Journal of Management, Vol. 17 Special Issue, pp. 63-S80

Harrison, A., van Hoek, R. 2011. “Logistics management and strategy. Competing through the supply chain”, 4th ed. Pearson Education Limited, pp. 255-294

Hartman, F. 2003. “Ten commandments of better contracting: a practical guide to adding value to an enterprise through more effective SMART contracting”, USA: ASCE Press, pp. 235-260

Heide, J. B., & Miner, A. S. 1992. “The shadow of the future: effects of anticipated interaction and frequency of contact on buyer-seller cooperation“, Academy of management journal, Vol. 35 No.2 pp. 265-291

Hilmola, O-P., Hejazi, A., Ojala, L. 2005. “Supply chain management research using case studies – a literature analysis”, International Journal of Integrated Supply Management, Vol. 1 No. 3, pp. 294-311

Homans, G.C. 1958. “Social behavior as exchange”, The American Journal of Sociology, Vol. 63 No. 6 pp. 597-606

Hoyt, J., Huq, F. 2000. “From arm’s-length to collaborative relationships in the supply chain. An evolutionary process.” International Journal of Physical Distribution & Logistics Management, Vol. 30 No. 9 pp. 750-764

Hsu, C-C, Kannan, V.R., Tan, K-C, Leong, G.K. 2008. ”Information sharing, buyer-supplier relationships, and firm performance. A multi-region analysis”, International Journal of Physical Distribution & Logistics Management, Vol. 38 No. 4, pp. 296-310

Hunt, S.D., Davies, D.F. 2008. “Grounding supply chain management in resource-advantage theory”, Journal of Supply Chain Management, Vol. 44 No. , pp. 10-21

Huemer, L. 1998. ”Trust in business relations: economic logic or social interaction?“, Borea Bokforlag, Umeå

Inkpen, A. C., Dinur, A. 1998. “Knowledge management processes and international joint ventures”, Organization Science, Vol. 9 No. 4, pp. 454-468

Inkpen, A.C., Tsang, E.W.K. 2005. “Social capital, networks and knowledge transfer”, The Academy of Management Review, Vol. 30 No. 1 pp. 146-165

Jahre, M., Fabbe-Costes, N. 2005. “Adaptation and adaptability in logistics networks”, International Journal of Logistics: Research and Applications, Vol. 8 No. 2 pp. 143-157

Jarillo, C.J. 1988. “On strategic networks”, Strategic Management Journal, Vol. 9 pp. 31-41

Johnston, D.A., McCutcheon, D.M., Stuart, F.I. 2004. “Effects of supplier trust on performance of cooperative supplier relationships”, Journal of Operations Management, Vol. 22 pp. 23-28

Kadefors, A. 2004. “Trust in project relationships – inside the black box”, International Journal of Project Management, Vol. 22 pp. 175-182

Kahn, K.B., Maltz, E.N., Mentzer, J.T. 2006. "Demand collaboration: effects on knowledge creation, relationships, and supply chain performance", Journal of Business Logistics, Vol. 27 No. 2 pp. 191-221

Kale, P., Singh, H., Perlmutter, H. 2000. "Learning and protection of proprietary assents in strategic alliances: building relational capital", Strategic Management Journal Vol. 21 No.3, pp. 217–237

Kamann, D-J, F., Snijders, C., Tazelaar, F., Welling, D.Th. 2006. "The ties that bind: buyer-supplier relations in the construction industry", Journal of Purchasing and Supply Management, Vol. 12 No. 1 pp. 28-38

Kampstra, R.P., Ashayeri, J., Gattorna, J.L. 2006. "Realities of supply chain collaboration", International Journal of Logistics Management, Vol. 17, Iss. 3 pp. 312-330

Kanter, R. M. 1989. "The new managerial work", Harvard business review, Vol. 67 No. 6, p. 85

Kaufmann, L., Denk, N. 2011. "How to demonstrate rigor when presenting grounded theory research in the SCM literature", Journal of supply chain management, Vol. 47 No. 4 pp. 64-72

Kern, T., Willocks, L. 2000. "Exploring information technology outsourcing relationships: theory and practice", The Journal of Strategic Information Systems, Vol. 9 No. 4 pp. 321-350

Ketchen, D.J., Hult, G.T.M. 2007. "Bridging organization theory and supply chain management: the case of best value supply chains", Journal of Operations Management, Vol. 25 pp. 573-580

Ketchen, D.J., Hult, G.T.M. 2011. "Building theory about supply chain management: some tools from the organizational sciences", Journal of Supply Chain Management, Vol. 47 No. 2 pp. 11-17

Kim, S. W. 2006. "Effects of supply chain management practices, integration and competition capability on performance", Supply Chain Management: An International Journal, Vol. 11 No. 3 pp. 241-248

Kim, S.W. 2009. "An investigation on the direct and indirect effect of supply chain integration on firm performance", International Journal of Production Economics, Vol. 119 No.2, pp. 328-346

Kim, D., Cavusgil, S. T., & Calantone, R. J. 2006. "Information system innovations and supply chain management: channel relationships and firm performance", Journal of the Academy of Marketing Science, Vol. 34 No. 1 pp. 40-54

Kim, S.W. 2006a. "Effects of supply chain management practices, integration and competition capability on performance", Supply Chain Management: An International Journal, Vol. 11 No. 3 pp. 241-248

Kim. S.W. 2006b. "The effect of supply chain integration on the alignment between corporate competitive capability and supply chain operational capability", International Journal of Operations & Production Management, Vol. 26 No. 10 pp. 1084-1107

Kingshott, R.P. 2006. "The impact of psychological contracts upon trust and commitment within supplier-buyer relationships: a social exchange view", Industrial Marketing Management, Vol. 36 No. 6 pp. 724-739

Krackhardt, D. 1992. "The strength of strong ties: The importance of philos in organizations", Networks and organizations: Structure, form, and action, pp. 216-239.

Kraljic, P. 1983. “Purchasing must become supply management”, Harvard Business Review, Sept/Oct pp. 109-117
Krause, D.R., Handfield, R.B., Tyler, B.B. 2007. “The relationships between supplier development, commitment, social capital accumulation and performance improvement”, Journal of Operations Management, Vol. 25 pp. 528-545
Kwon, I-W, G., Suh, T. 2004. “Factors affecting the level of trust and commitment in supply chain relationships”, Journal of Supply Chain management, Vol. 40 No. 2 pp. 4-14
Lakemond, N., van Raaij, E., van Weele, A. 2004. “Value creation through collaboration: the complex reality of supplier involvement in product development”, Proceedings of the 13th international annual IPSERA conference, Catania, Italy
Lambert, D.M., Emmelhainz, M.A., Gardner, J.T. 1996. “Developing and implementing supply chain partnerships”, International Journal of Logistics Management, Vol. 7 No. 2 pp.1-18
Lambert, D.M., Cooper, M.C. 2000. “Issues in supply chain management”, Industrial Marketing Management, Vol. 29 pp. 65-83
Laumann, E.O., Galaskiewicz, J., Marsden, P.V. 1978. “Community structure as interorganizational linkages”, Annual Review of Sociology, Vol. 4 pp. 455-484
Lavie, D. 2006. “The competitive advantage of interconnected firms: an extension of the resource-based view”, Academy of Management Review, Vol. 31 No. 3 pp. 638-658
Lawson, B., Tyler, B.B., Cousins, P.D. 2008. “Antecedents and consequences of social capital on buyer performance improvement”, Journal of Operations Management, Vol. 26 No. 3 pp. 446-460
Lazerson, M. 1995. “A new phoenix: modern putting-out in the Modena knitwear industry”, Administrative Science Quarterly, 40 pp. 34-59
Lee, H.L., Padmanabhan, V., Whang, S. 1997. “Information distortion in a supply chain: the bullwhip effect”, Management science, Vol. 43 No. 4, pp. 546-558
Lee, H.L., So, K.C., Tang, C.S. 2000. “The value of information sharing in a two-level supply chain”, Management Science, Col. 46 No. 5 pp. 626-643
Lewis, M.W. 1998. “Iterative triangulation: a theory development process using existing case studies“, Journal of Operations Management, Vol. 16 No. 4 pp. 455-469
Lewis, J.D., Weigert, A. 1985. “Trust as a Social Reality”, Social Forces, Vol. 63 No.4, pp. 967-985
Li, G., Yang, H., Sun, L., Sohal, A.S. 2009. “The impact of IT implementation on supply chain integration and performance”, International Journal of Production Economics, Vol. 120, Issue 1, pp. 125-138
Lincoln, Y.S., Guba, E.G. 1985. “Naturalistic inquiry”, Beverly Hills, CA: Sage Publications, Inc., 416 p.
Locke, K. 1996. “Rewriting the discovery of grounded theory after 25 years?”, Journal of Management Inquiry, Vol. 5 No. 3 pp. 239-245
López, S.V. 2005. “Competitive advantage and strategy formulation – the key role of dynamic capabilities”, Management Decision, Vol. 43 No. 5 pp. 661-669
Loury, G.C. 1977. “A dynamic theory of racial income differences” in Women, Minorities and Employment Discrimination, P. Wallace and A. LaMont (eds.), Lexington, Mass: Lexington Books, pp. 153-186
Lusch, R.F., Vargo, S.L., Tanniru, M. 2010. “Service, value networks and learning”, Journal of the Academic Marketing Science, Vol. 38 pp. 19-31

Lönngren, H.M., Rosenkranz, C., Kolbe, H. 2010. "Aggregated construction supply chains: success factors in implementation of strategic partnerships", Supply Chain Management: An International Journal, Vol. 15 No. 5 pp. 404-

Maloni, M., Benton, W.C. 2000. "Power influences in the supply chain", Journal of Business Logistics, Vol. 21, No. 1 pp. 49-73

Martinsuo, M., Ahola, T. 2010. "Supplier integration in complex delivery projects: comparison between different buyer-supplier relationships", International Journal of Project Management, Vol. 28 No. 2 pp. 107-116

McEvily, B., Marcus, A. 2005. "Embedded ties and the acquisition of competitive capabilities", Strategic Management Journal, Vol. 26 No. 11 pp. 1033-1055

Medcof, J.W. 2001. "Resource-Based Strategy and Managerial power in Networks of International Dispersed Technology Units", Strategic Management Journal, Vol. 22 No. 11, pp. 999-1012

Mello, J., Flint, D. 2009. "A refined view of grounded theory and its application to logistics research", Journal of Business Logistics, Vol. 30 No. 1 pp. 107-125

Mena, C., Humphries, A., Wilding, R. 2009. "A comparison of inter- and intra-organizational relationships", International Journal of Physical Distribution & Logistics management, Vol. 39 No. 9 pp. 762-784

Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D. and Zacharia, Z. G. 2001. "Defining supply chain management", Journal of Business Logistics, Vol. 22 No. 2 pp. 1-26

Mesquita, L.F., Anand, J., Brush, T.H. 2008. "Comparing the resource-based view and relational views: knowledge transfer and spill over in vertical alliances", Strategic Management Journal 29 pp. 913-941

Mills, J., Schmitz, J., Frizelle, G. 2004. "A strategic review of "supply networks"", International Journal of Operations & Production Management, Vol. 24 No. 10 pp. 1012-1036

Min, S., Roath, A.S., Daugherty, P.J., Genchev, S.E., Chen, H., Arndt, A.D., Richey, R.G. 2005. "Supply chain collaboration: what's happening?", The International Journal of Logistics Management, Vol. 16 No. 2 pp. 237-256

Mohr, I., Spekman, R. 1994. "Characteristics of partnership success: partnership attitudes, communication, behavior and conflict resolution techniques", Strategic Management Journal, Vol. 15 pp. 135-152

Moorman, C., Deshpande, R., Zaltman, G. 1993. "Factors affecting trust in market research relationships", Journal of Marketing, Vol. 57 pp. 81-101

Morgan, R.M., Hunt, S.D. 1994. "The commitment-trust theory of relationship marketing", Journal of Marketing, Vol. 58 No. 3 pp. 20-38

Morse, J.M. 1995. "The significance of saturation", Qualitative Health Research, Vol. 5 No.3, pp. 147-149

Moustaghfir, K. 2009. "How knowledge assets lead to a sustainable competitive advantage: are organizational capabilities a missing link?", Knowledge Management Research & Practice, Vol. 7 pp. 339-355

Muthusamy, S.K., White, M.A. 2006. "Does power sharing matter? The role of power and influence in alliance performance", Journal of Business Research, Vol. 59, No. 7, pp. 811-819

Nahapiet, J., Ghoshal, S. 1997. "Social capital, intellectual capital and the creation of value in firms", Academy of Managament Best Paper Proceedings, pp. 35-39

Nahapiet, J., Ghoshal, S. 1998. “Social capital, intellectual capital and the organizational advantage”, The Academy of Management Review, Vol. 23 No.2 pp. 242-266

Narasimhan, R., Jayram, J. 1998. “Causal linkages in supply chain management: an exploratory study of North American manufacturing firms”, Decision Sciences, Vol. 29 No. 3 pp. 579-605

Narasimhan, R., Das, A. 2001. “The impact of purchasing integration and practices on manufacturing performance”, Journal of Operations Management, Vol. 19 No. 5, pp. 593-609

Narasimhan, R., Nair, A., Griffith, D.A., Arlbjorn, J.S., Bendoly, E. 2009. “Lock-in situations in supply chains: a social exchange theoretic study of sourcing arrangements in buyer-supplier relationships”, Journal of Operations Management, Vol. 27 No. 5 pp. 374-389

Nieminen, S. 2011. “Supplier relational effort in the buyer-supplier relationship”, Doctoral dissertation 130/2011, Aalto University

Nohria, N. 1992. “Is a network perspective a useful way of studying organizations?” in “Leading Organizations: Perspectives for a New Era” (Hickman ed.), Sage, 613 p.

Nonaka, I., Takeuchi, H. 1995. “The knowledge-creating company: how Japanese companies create the dynamics of innovation”, Oxford University Press, New York

Nyaga, G.N., Whipple, J.M., Lynch, D.F. 2010. “Examining supply chain relationships: do buyer and supplier perspectives on collaborative relationships differ?”, Journal of Operations Management, Vol. 28 No. 2 pp. 101-114

Packham, G., Thomas, B., Miller, C. 2003. “Partnering in the house building sector: a subcontractor’s view”, International Journal of Project Management, Vol. 21 No. 5, pp. 327-332

Pagell, M. 2004. “Understanding the factors that enable and inhibit the integration of operations, purchasing and logistics”, Journal of Operations Management, Vol. 22 No. 5 pp. 459-487

Pagell, M., Wu, Z. 2006. “Enhancing integration of supply chain functions within a firm: exploring the critical factors through eleven cases”, International Journal of Integrated Supply Management, Vol. 2 No. 4 pp. 295-315

Patnayakuni, R., Rai, A., Seth, N. 2006. “Relational antecedents of information flow integration for supply chain coordination”, Journal of Management Information Systems, Vol. 23 No. 1 pp. 13-49

Paulraj, A., Chen, I.J. 2007. “Strategic buyer-supplier relationships, information technology and external logistics integration”, Journal of Supply Chain Management, Vol. 43 No. 2 pp. 2-14

Peck, H., Jüttner, Uta. 2000. “Strategy and Relationships: Defining the Interface in Supply Chain Contexts”, International Journal of Logistics Management, Vol. 11 No. 2, pp. 33-44

Penrose, E.T. 1959. “The theory of growth of the firm”, New York: Wiley

Peteraf, M.A. 1993. “The cornerstones of competitive advantage: a resource-based view”, Strategic Management Journal, Vol. 14 pp. 179-191

Phillips, L. 1981. “Assessing measurement error in key informant reports: a methodological note on organizational analysis in marketing”, Journal of Marketing Research, Vol.18 (November) pp. 395–415

Poole, M.S., Van de Ven, A.H. 1989. "Using paradox to build management and organizational theories", Academy of Management Review, Vol. 14 No. 4 pp. 562-578

Portes, A. 1998. "Social capital: its origins and applications in modern sociology", Annual Review of Sociology, Vol. 24 pp. 1-24

Power, D. 2005. "Supply chain management integration and implementation: a literature review", Supply Chain Management: An International Journal, Vol. 10 No. 4 pp. 252-263.

Pratt, M.G. 2008. "Fitting oval pegs into round holes: tension in evaluating and publishing qualitative research in top-tier North American journals", Organizational Research Methods, Vol. 11 No. 3 pp. 481-509

Putnam, R. 1995. "Bowling Alone: America's Declining Social Capital", Journal of Democracy, Vol. 6 No. 1, pp. 65-78

Richey Jr, R. G., Autry, C.W. 2009. "Assessing interfirm collaboration/technology investment tradeoffs: the effects of technological readiness and organizational learning", International Journal of Logistics Management, Vol. 20 No. 1 pp. 30-56.

Rosenzweig, E.D., Roth, A.V., Dean, J.W.Jr. 2003. "The influence of an integration strategy on competitive capabilities and business performance: An exploratory study of consumer products manufacturers", Journal of Operations Management, Volume 21, Issue 4, July 2003, pp. 437-456

Rotter, J. B. 1971. "Generalized expectancies for interpersonal trust", American Psychologist, Vol. 26 No. 5, p. 443

Rousseau, D.M., Sitkin, B., Burt, R.S., Camerer, C. 1998. "Not so different after all: a cross-discipline view of trust", Academy of Management Review, Vol. 23 No. 3 pp. 393-400

Saunders, M., Lewis, P., Thornhill, A. 2009. "Research methods for business students", 5th ed., Prentice Hall, Harlow

Saunders, M., Lewis, P., Thornhill, A. 2003. "Research methods for business students", Prentice Hall, Harlow

Sanders, N.R. 2005. "IT alignment in supply chain relationships: a study of supplier benefits", Journal of Supply Chain Management, Vol. 41 No. 2 pp. 4-13

Segerstedt, A., Olofsson,T. 2010. "Supply chains in the construction industry", Supply Chain Management: An International Journal, Vol. 15 No. 5 pp. 347-353

Seuring, S.A. 2008. "Assessing the rigor of case study research in supply chain management", Supply Chain Management: An International Journal, Vol.13 No. 2 pp. 128-137

Shub, A.N., Stonebraker, P.W. 2009. "The human impact on supply chains: evaluating the importance of "soft" areas on integration and performance", Supply Chain Management: An International Journal, Vol. 14 No. 1 pp. 31-40

Simatupang,T.M., Sridharan, R. 2005. "The collaboration index: a measure for supply chain collaboration", International Journal of Physical Distribution and Logistics, Vol. 35 No. 1 pp. 44-62

Sinkovics, R.R., Penz, E., Ghauri, P.N. 2008. "Enhancing the trustworthiness of qualitative research in international business", Management International Review, Vol. 48 No. 6, pp. 689-714

Skjoett-Larsen, T., Thernøe, C., Andresen, C. 2003. "Supply chain collaboration: Theoretical perspectives and empirical evidence", International Journal of Physical Distribution and Logistics, Vol. 22 No. 6 pp. 531-549

Spekman R., Kamauff J., Myhr N. 1998. “An empirical investigation into supply chain management: a perspective on partnerships”, International Journal of Physical Distribution and Logistics Management, Vol. 28 No. 8, pp. 630-650

Stake, R. 2000. “Case studies” in N.K. Denzin & Y.S. Lincoln (Eds), Handbook of qualitative research, 2nd ed., Thousand Oaks, sage, CA, pp. 435-454

Stank, T.P., Keller, S.B., Daugherty, P.J. 2001. “Supply chain collaboration and logistical service performance”, Journal of Business Logistics, Vol. 22 No. 1 pp. 29-48

Stevens, G.C. 1989. “Integrating the supply chain”, International Journal of Physical Distribution and Materials Management, Vol. 19 No. 8 pp. 3-8

Stock, G.N., Greis, N.P., Kasarda, J.D. 1998. “Logistics, strategy and structure. a conceptual framework”, International Journal of Operations&Production Management, Vol. 18 No. 1 pp. 37-52

Stock, G.N., Greis, N.P., Kasarda, J.D. 2000. “Enterprise logistics and supply chain structure: the role of fit”, Journal of Operations Management, Vol. 18 pp. 531-547

Stonebraker, P.W., Afifi, R. 2004. “Toward a contingency theory of supply chains”, Management Decision, Vol. 42 No. 9 pp. 1131-1144

Stonebraker, P.W., Liao, J. 2004. “Environmental turbulence, strategic orientation: Modeling supply chain integration”, International Journal of Operations & Production Management, Vol. 24 No. 10 pp. 1037-1054

Strauss, A., Corbin, J. 1990. “Basics of qualitative research: grounded theory procedures and techniques”, Sage, Newbury Park

Stuart, I., McCutcheon, D., Handfield, R., McLachlin, R., Samson, D. 2002. “Effective case research in operations management: a process perspective”, Journal of Operations Management, Vol. 20 No. 5 pp. 419-433

STX Europe. 2011. ALKU-hankkeen infotilaisuus, TTY/Porin Yliopistokeskus, 17.11.2011

Tan, K-C., Kannan, V.R., Handfield, R.B., Ghosh, S. 1999. “Supply chain management: an empirical study of its impact on performance”, International Journal of Operations &Production Management. Vol. 19 No. 10 pp. 1034-1052

Tan, K.C. 2001. “A framework of supply chain management literature”, European Journal of Purchasing & Supply Management, Vol. 7 pp. 39-48

TEKES report. 2008. “Suomen meriklusteri 2008”, 226/2008

Trkman, P., Štemberger, M.I., Jaklic, J., Groznik, A. 2007. “Process approach to supply chain integration”, Supply Chain Management: An International Journal, Vol. 12 No. 2, pp. 116-128

Tsai, W., Ghoshal, S. 1998. “Social capital and value creation: the role of intrafirm networks”, The Academy of Management Journal, Vol. 41 No. 4 pp. 464-476

Uusitalo, H. 1991. “Tiede, tutkimus ja tutkielma. Johdatus tutkielman maailmaan” Juva: WSOY

Uzzi, B. 1997. “Social structure and competition in interfirm networks. The paradox of embeddedness”, Administrative Science Quarterly, Vol. 42 No. 1 pp. 35-67

Van der Vaart, T., van Donk, D.P. 2008. “A critical review of survey-based research in supply chain integration”, International Journal of Production Economics. Vol. 111 pp. 42-55

van Donk, D. P., van der Vaart, T. 2005. “A case of shared resources, uncertainty and supply chain integration in the process industry”, International Journal of Production Economics, Vol. 96, pp. 97-108

Vickery, S.K., Jayaram, J., Droge, C., Calantone, R. 2003. "The effects of an integrative supply chain strategy on customer service and financial performance: an analysis of direct versus indirect relationships", Journal of Operations Management, Vol. 21 pp. 523-539

Vijayasarathy, L.R. 2010. "Supply integration: an investigation of its multi-dimensionality and relational antecedents", International Journal of Production Economics, Vol. 124 pp. 489-505

Villena, V.H., Revilla, E., Choi, T.Y. 2011. "The dark side of buyer-supplier relationships: a social capital perspective", Journal of Operations Management, Vol. 29 pp. 561-576

Voss, C., Tsikriktsis. N., Frohlich, M. 2002. "Case research in operations management", International Journal of Operations & Production Management, Vol. 22 No. 2 pp. 195-219

Vuori, E. 2012. "Competitive advantage in networks of knowledge-intensive business services", Dissertation, TUT, Publication 1029, 199 p.

Wagner, S.M., Coley, L.S., Lindemann, E. 2011. "Effects of suppliers' reputation on the future of buyer-supplier relationships: the mediating roles of outcome fairness and trust", Journal of Supply Chain Management, Vol. 47 No. 2 pp. 29-48

Walter, A., Ritter, T., Gemünden, H.G. 2001. "Value creation in buyer-seller relationships: theoretical considerations and empirical results from a supplier's perspective", Industrial Marketing Management, Vol. 30 No.4 pp. 365-377

Webster's Third New International Dictionary. 1966. William Benton, Chicago

Weick, K. E., Roberts, K. H. 1993. "Collective mind in organizations: Heedful interrelating on flight decks", Administrative science quarterly, pp. 357-381

Welling, D.Th., Kamann, D-J, F. 2001. "Vertical cooperation in the construction industry: size does matter", Journal of Supply Chain Management, Vol. 37 No. 4 pp. 28-33

Wernerfelt, B. 1984. "A resource-based view of the firm", Strategic Management Journal, Vol. 5 pp. 171-180

Wicks, A. C., Berman, S. L., Jones, T. M. 1999. "The structure of optimal trust: Moral and strategic implications", Academy of Management review, pp. 99-116

Wilding, R., Humphries, A.S. 2006. "Understanding collaborative supply chain relationships through the application of the Williamson organizational failure framework", International Journal of Physical Distribution & Logistics Management, Vol. 36 No. 4 pp. 309-329

Williamson, O.E. 1975. "Markets and hierarchies, analysis and antitrust implications: A study in the economics of internal organizations", New York: Free Press

Williamson, O.E. 1981. "The economics of organization: the transaction cost approach", American Journal of Sociology, Vol. 86 No. 3 pp. 548-577

Williamson, O.E. 1985. "The economic institutions of capitalism", New York: Free Press

Williamson, O.E. 1986. "A microanalytic assessment of "the share economy"", Yale Law Journal, No. 95, pp. 627-637

Williamson, O. E. 1991. "Comparative economic organization: The analysis of discrete structural alternatives", Administrative science quarterly, pp. 269-296

Williamson, O. E. 1996. "Economic organization: the case for candor", Academy of Management Review, Vol. 21 No. 1, pp. 48-57

Williamson, O.E. 1998. The Economic Institutions of Capitalism, Free Press

Williamson, O.E. 2008. “Outsourcing: transaction cost economics and supply chain management”, Journal of Supply Chain Management, Vol. 44 No. 2 pp. pp. 5-16

Wong, P. S-P, Cheung, S-O. 2004. “Trust in construction partnering: views from parties of the partnering dance”, International Journal of Project Management, Vol. 22 No. 6 pp. 437-446

Yang, J., Wang, J., Wong, C.W.Y., Lai, K-H. 2008. “Relational stability and alliance performance in supply chain”, Omega, Vol. 36 No. 4 pp. 600-608

Yeung, J.H.Y., Selen, W., Zhang, M., Huo, B. 2009. “The effects of trust and coercive power on supplier integration”, International Journal of Production Economics, Vol. 120 pp. 66-78

Yin, R.K., 2003. “Case study research: Design and Methods”, 3rd. ed. Sage Publications, Thousand Oaks, California

Young-Ybarra, C., Wiersema, M. 1999. “Strategic flexibility in information technology alliances: the influence of transaction cost economics and social exchange theory”, Organization Science, Vol. 10 No. 4 pp. 439-459

Zachria, Z.G., Nix, N.W., Lusch, R.F. 2009. “An analysis of supply chain collaborations and their effect on performance outcomes”, Journal of Business Logistics, Vol. 30 No. 2 pp.101-123

Zaghloul, R., Hartman, F. 2003. “Construction contracts: the cost of mistrust”, International Journal of Project Management, Vol. 21 No. 6 pp. 419-424

Zaheer, A., McEvily, B., Perrone, V. 1998. “Does trust matter? Exploring the effects of interorganizational and interpersonal trust on performance”, Organization science, Vol. 9 No. 2, pp. 141-159

Zailani, S., Rajagopal, P. 2005. “Supply chain integration and performance: US versus East Asian companies”, Supply Chain Management: An International Journal, Vol. 10 No. 5 pp. 379-393

Zajac, E.J., Olsen, C.P. 1993. “From transaction cost to transactional value analysis: implications for the study of interorganizational strategies”, Journal of Management Studies, Vol. 30 No. 1 pp. 131-145

Zhao, X., Huo, B., Flynn, B.B., Yeung, J.H.Y. 2008. “The impact of power and relationship commitment on the integration between manufacturers and customers in a supply chain”, Journal of Operations Management, Vol. 26 No.3, pp. 368-388

Zhang, C., Henke, Jr., J.W., Griffith, D.A. 2009. “Do buyer cooperative actions matter under relational stress? Evidence from Japanese and U.S. assemblers in the U.S. automotive industry”, Journal of Operations Management, Vol. 27 No. 6 pp. 479-494

APPENDIX 1 Distribution of articles in the 11 journals

Selected journals and years	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
IJISM												
Total # papers	-	-	-	-	12	13	21	24	22	10	10	**112**
SCI benefits	-	-	-	-	1	1	7	2	2	3	2	**18**
SCI benefits/context	-	-	-	-	-	-	2	2	1	1	1	**7**
IJLM												
Total # papers	16	13	15	16	15	15	20	21	19	22	22	**194**
SCI benefits	1	-	4	3	3	3	1	4	1	1	1	**22**
SCI benefits/context	1	-	-	1	-	1	-	-	-	-	-	**3**
IJOPM												
Total # papers	75	82	67	71	61	68	62	59	51	52	50	**698**
SCI benefits	3	1	-	2	1	1	4	1	1	4	1	**19**
SCI benefits/context	1	-	-	-	-	-	1	1	1	1	1	**6**
IJPDLM												
Total # papers	46	39	42	42	44	41	43	41	40	40	42	**460**
SCI benefits	1	2	3	3	-	2	2	1	1	2	-	**17**
SCI benefits/context	-	-	-	-	-	2	2	-	1	1	-	**6**
IJPM												
Total # papers	44	44	66	64	66	70	72	85	85	72	79	**747**
SCI benefits	3	-	2	2	3	1	1	3	-	-	2	**17**
SCI benefits/context	1	-	-	2	2	1	-	1	-	-	1	**8**
JPSM												
Total # papers	-	-	-	26	24	21	24	19	20	21	23	**178**
SCI benefits	-	-	-	2	4	-	2	1	1	1	2	**13**
SCI benefits/context	-	-	-	1	1	-	1	1	-	-	1	**5**
JBL												
Total # papers	-	18	13	20	19	19	17	16	24	23	29	**198**
SCI benefits	-	4	-	2	1	1	2	-	1	3	-	**14**
SCI benefits/context	-	2	-	1	1	1	2	-	1	3	-	**11**
JOM												
Total # papers	29	34	41	33	30	36	55	83	49	32	38	**460**
SCI benefits	-	1	1	2	3	1	2	1	4	1	4	**20**
SCI benefits/context	-	1	1	2	1	-	2	-	1	1	4	**13**
JSCM												
Total # papers	22	22	20	12	15	16	16	16	17	9	15	**180**
SCI benefits	-	1	1	1	1	3	1	1	2	-	1	**12**
SCI benefits/context	-	1	-	-	1	1	-	1	1	-	-	**5**
PMJ												
Total # papers	-	-	-	-	-	-	-	12	39	30	34	**115**
SCI benefits	-	-	-	-	-	-	-	-	-	-	2	**2**
SCI benefits/context	-	-	-	-	-	-	-	-	-	-	1	**1**
SCM-IJ												
Total # papers	23	24	30	44	39	45	58	44	46	45	42	**440**
SCI benefits	-	1	-	-	5	5	3	4	6	2	7	**33**
SCI benefits/context	-	1	-	-	-	3	1	2	3	-	1	**11**
Total for 11 journals between 2000-2010												
Total # papers	255	276	294	328	325	344	388	420	412	356	384	**3782**
SCI benefits	8	10	11	17	22	18	25	18	19	17	22	**187**
SCI benefits/context	3	5	1	7	6	9	11	8	9	7	10	**76**

APPENDIX 2 List of interview questions (subcontractors)

1 BACKGROUND

- Company size (personnel, turnover)
- Branch of industry
- What does the company produce? To whom? Standard products of manufacture-to-order products? What products related to this collaboration? Are the same products made for other clients? Has the company many collaborative relations in the maritime network?
- What is the profitability of the company?
- What is the respondent's role/position/assignment in the organization?
- What is the company's role in relation to its collaborative partner? (e.g. subcontractor, turnkey supplier, shipyard, i.e. what is the mutual relationship?)
- What is the company's situation in a supply chain or network? Who are upstream and downstream players?
- What is the collaborative relationship like? (project-based contract/contract for part of a project, annual contract, strategic partnership)
- How have you ended up in this relationship? (through tendering, a fishing mate)
- Are the knowhow, deliveries and quality related to collaboration ensured? Are there audit calls? Contracts for restrictive trade practices? What kind of terms of payment?
- How long have you collaborated? (years, months)
- Have you collaborated with the same company previously? If yes, how long did it last?

2 IMPORTANCE OF COLLABORATIVE ELEMENTS (SCALE 1-5, NOT AT ALL IMPORTANT – EXTREMELY IMPORTANT)

- Is mutual communication (I&KS) important?
    - What kind of I&SK is there? (regular, occasional, contract based, formal, informal, tacit knowledge). What does I&KS concern? (quality assurance, production and delivery schedules)
    - How important is communication (scale 1-5)?
- What is the relevance of mutual trust between network companies? How does trust show? (information sharing, less surveillance, unwritten agreements, reasonable payment terms)
    - How is it evaluated or does it matter? (scale 1-5)
- Is collaboration based on formal, written contracts? Or unwritten agreements? How important are the contracts and carefully specified conditions? (scale 1-5)
- Do you know the partner's objectives set for the collaboration? Are they in line with the objectives you have? What is the importance? (scale 1-5)
- Is it important to maintain inter-personal relationships? Is collaboration based on relationships between individuals? Or on acquaintanceship or mutual chemistry? How important it is to deal with the promised commitments? (scale 1-5)

3 SIGNIFICANCE OF COLLABORATION (REASONS AND BENEFITS) (SCALE 1-5 NOT AT ALL IMPORTANT – EXTREMELY IMPORTANT**)**

- Is collaboration seen as an opportunity to combine and exploit also the resources and competence (e.g. equipment, facilities, personnel) beyond the company boundaries? How important is it? (1-5)
- Does collaboration decrease uncertainty? How important is it? (1-5)
- Are you better aware of the other company's modes of operation, quality expectations? Can you trust to get the needed information in time? Can you trust to be paid in time?
- Do both companies benefit from collaboration? How important is it? (1-5)
- What kind of benefits does collaboration offer? (speed, lower costs, better quality, possibility to exploit the partner's facilities, equipment, personnel. What is the importance of these benefits? (1-5)
- Is collaboration more common in large or small projects?
- Do you want to collaborate also in future projects? How important is collaboration in the future? (1-5)

Benefits based on collaboration (scale 1-5, not at all important – extremely important)**:**

- Does collaboration decrease conflicts between companies?
- Does collaboration increase customer satisfaction?
    - Do you get feedback on it? Do you know what customer wants and how you succeed?
- Does collaboration increase understanding between partners? (less confirming, check-ups, misunderstandings)
- Does collaboration improve the accuracy of schedules?
- Does collaboration decrease costs?
- Does collaboration improve management? (less negotiations, bureaucracy, surveillance, tendering)
- Does collaboration improve quality? (expectations and competence are known)
- Does collaboration speed up planning?
- Does collaboration increase the company's market share? (measured in number of sold items or in monetary value of sales)
- How much do you invest in collaboration? (money, time, personnel)
- How important is this investment for the counterpart? Does it improve mutual trust or decrease control?
- How functioning is the relationship? (scale 1-7 really bad - extremely good)

4 STATE OF RELATIONAL SKILLS

Communication, I&KS

- Do you share in this relationship information about events or changes that might affect the other party?
- Do you report your partner on anything that might help your partner?
- Do you share also sensitive information that might help your partner?
- Do you communicate in this relationship regularly and unofficially? (not based on specific contract)

Common objectives

- Are your objectives common/in line with your partner company's objectives? (do you know your partner's objectives?)
- Are the motives for collaboration alike?

Trust

- Can you trust the partner at all times?
    - Is the partner trustworthy?
- Are you aware of the partner's behavioral norms and can you trust them to behave in a certain manner?
- Does your partner company keep its promises?
- Is your partner always open and honest?
- Can you rely on information you receive from your partner?
- Is your partner truly interested in your success?
- Does your partner always keep your interest in mind when making decisions?

5 EXPRESSION OF COLLABORATION

Commitment

- How collaboration has affected your willingness to collaborate? (improved, decreased, has not affected)
- How collaboration has affected your willingness to give support to your partner?
- Has collaboration increased your willingness to prefer this collaboration instead of other actions?
- Is your company committed to this collaboration? Are you going to maintain this collaborative relationship also in the future?
- Is this collaborative relationship important to you? How important? (scale 1-7)

Flexibility

- How collaboration has affected the ability to respond to sudden changes in demand?
- How collaboration has affected the ability to respond to customers' changing needs?

Opportunistic behavior and control

- How collaboration has affected the ability/willingness to share also sensitive information that might help the partner company?
- Has collaboration somehow affected your trust in that your partner will inform you on anything that might help your company?
- Has collaboration simplified the search for partner as well as negotiations concerning contracts? (i.e. savings in transaction costs)
- How collaboration has affected check-ups and surveillance? (diminished when partner is trusted?)

6 IMPACTS OF COLLABORATION

Financial and operational performance

- Has collaboration increased company's market share? (compared to main competitor, in the industrial branch)
- Has collaboration increased the loyalty of customers?
- Has collaboration affected in increase in sales?
- Has collaboration affected the ROI?
- Has collaboration improved the quality of company's products?
- Has collaboration increased the company's competitive position?
- Has collaboration increased the level of customer service?

APPENDIX 3 List of interview questions (shipyards)

1 BACKGROUND

- Company size (personnel, turnover)
- Branch of industry
- What does the company produce? To whom?
- What is the profitability of the company?
- What is the respondent's role/position/assignment in the organization?
- What is the company's role in relation to its collaborative partner? (e.g. subcontractor, turnkey supplier, shipyard, i.e. what is the mutual relationship?)
- What is the company's situation in supply chain or network? Who are upstream and downstream players? Who are competitors?
- What is collaborative relationship like? (project-based contract/contract for part of a project, annual contract, strategic partnership)
- How have you ended up in this relationship? (through tendering, a fishing mate)
- How long are relationships in average?
- What is the average size of subcontracts/projects/partial entireties? Share of total production?
- Do you collaborate repeatedly with the same subcontractors? What is the percentage of recurrent suppliers/subcontractors?

2 EXPLOITING RELATIONS AND RELATIONAL SKILLS

- What is understood by relational skills/competence?
- How can relational skills (setting common goals, trust, communication and knowledge sharing) be utilized when managing the network of subcontractors? Does relational competence affect the selection of a partner, contents of a contract, common development projects?
- Do you control/assess/measure the subcontractors' relational competence?
    - Do you pay attention to the fluency of communication (level, extent, reliability, timeliness), do you emphasize trustworthiness and commitment to collaboration, is it important to set and recognize common goals? How do these matters influence collaboration/outcomes?
- On what grounds are subcontractors classified/managed? (price, reliability (risk) of delivery, quality, need for surveillance, the type of product/service (bulk, strategic,…)
- What is the significance of subcontractor relationships? Do relationships add to competitive advantage? Are relations essential to achieve the final results?
    - Is collaboration seen as a means to combine and exploit external resources and knowhow (equipment, premises, technology, personnel)? How important is it (1-5)? Does collaboration allow the utilization of a resource significant for the success of the shipyard? What might that be?

- What kind of benefits does collaboration enable? (quick utilization of subcontractors' knowhow/technology, leveling the business cycles, greater flexibility, increased effectiveness) How important are these benefits (1-5)?
- What kind of challenges are there in forming and maintaining the relationships?
- Does shipyard want to collaborate repeatedly with the same partners also in future projects? How important is the recurring of relations (1-5)? Why is it (not) important?
- Does collaboration decrease uncertainty? Does length or recurrent nature of relationship affect uncertainty?
- Does collaboration affect the amount of contradictions, understanding?
- Does collaboration affect the schedule (accuracy)?
- Does collaboration affect risk exposure? Does it improve risk sharing? (knowhow, business cycles, technology)
- Does collaboration affect costs?
- Does (recurrent) collaboration improve management? (less negotiations, bureaucracy, control, tendering)
- Does (recurrent) collaboration improve quality? (demands and know-how are mutually known)
- Does collaboration speed up planning?
- Does collaboration increase sales? Company's market share?
- How do you take care and maintain a relationship significant for your success?
- How much (money, time, personnel) do you invest in relationships with subcontractors?
    - How important is this investment to you partner companies? (How) does it affect?
- How well-working are your relations with your subcontractors (1-7)?
- Do both parties (shipyard and subcontractors) benefit from collaboration? How?

3 SOURCES OF COMPETITIVENESS

- What are the sources of competitiveness for the shipyard/network?
    - What enables specialization and networking? (company's market position, network resources, management, ICT, reputation, brand, reliability of delivery, operative know-how, project management, common interests, good quality of information,…)
- Does one need to own the competencies or is it sufficient to be able to use them?
- What is the role of single social competence elements (communication and information sharing, trust and setting common objectives) on competitiveness?
- Does mutual information sharing and communication improve competitiveness? If yes then how? (does it improve the quality of project management, enhance the reliability of delivery, improve know-how, increase flexibility, fasten operations,…)
- Does mutual trust improve company's/network's competitiveness? If yes then how? (does it increase knowledge sharing, decrease the need for surveillance, lower costs,…)
- Does setting and recognizing common goals improve competitiveness? If yes then how? (do common interests enhance operations, do they increase commitment,…)

- Are relationships with subcontractors a remarkable resource for the network's/shipyard's competitiveness? If yes, how are relations utilized/combined into competencies?
- How can relations be better utilized in the future to gain competitive edge?

APPENDIX 4 Evidence of building collaboration on relational aspects: subcontractor view

Relational aspects	Evidence from the case project network
Communication	"Communication related to work performance and scheduling is important as installation work is time-critical. We have weekly meetings on the site." *(SC B)* "Information sharing is really important to ensure maximum mutual benefits. Also delicate information can be shared." *(SC C)* "Mutual information sharing is important as it ensures preparation and preparing." *(SC E)* "Information sharing with the partner is extremely important. We have 3 weekly meetings on the site. Communication is open and unofficial." *(SC F)* "Sharing information with a partner is very important. There is nothing without it." *(SC G)* "Information sharing is important. We also have a lot of unofficial communication. Advance information is also available." *(SC H)*
Trust	"Trust plays a key role because of quality. Good quality ensures customers and new or recurrent orders. Reliable information sharing benefits everyone." *(SC A)* "Trust is in key role. Also information concerning prices is shared. Customer is trusted to make decisions benefitting also the subcontractor." *(SC B)* "Trust is important in trading. Also delicate information can be shared. Customer is trusted to keep his word. Customer is trusted – at least during the project. The information gained from customer is reliable (benefits the customer as well)." *(SC C)* "Mutual trust is important. Customer can trust to get skilled workers. Customer is trusted during the project. Dues are done in time and information is trustworthy." *(SC D)* "Importance of trust is big. "Keeping one's word" is mutual. Also failures must be informed. Trustworthiness depends on a person. Information concerning manufacturing and orders can be trusted, information concerning prices can not." *(SC E)* "Trust is very important, both parties must tell the truth. Trust can be seen in industrial peace. Knowing the partner inside out and personally is important." *(SC F)* "Mutual trust is subject number one. Without it there is no work. Keeping one's word is essential. Trust must be earned by first impression and own actions. A trusting relationship throughout the organization is important." *(SC G)* "The importance of mutual trust is big. Trust is more inter-personal than inter-organizational. Keeping the agreements is an expression of trust. Customer is trusted during the project. The information gained from customer is reliable (benefits the customer as well)." *(SC H)*
Shared values	"Customer is assumed to expect quality from the relationship." (SC A) "Customer is known to expect good work, good quality in time. Customer takes subcontractors into consideration and acknowledges them. The success of both companies is a mutual interest." (SC B) "Experience has taught the partners' objectives. Customers are supposed to trust

	subcontractor's knowhow and thus using it. Responsibility is brought downwards the supply chain." (SC C) "Knowing the partner's objectives set to the collaboration is important. Work motivation is improved by knowing the objectives for quality and schedules as well as future plans. Mutual objectives are in line: customer wants work to be done and requires skilled workers, subcontractor provides them." *(SC D)* "In small projects the focus is in executing the transaction; customer expects low price and subcontractor aims at effective manufacturing. Values and objectives might be clear for the management but this information does not necessarily stream down the organization. Shared objectives and values are not discussed, they are assumed to be known." *(SC E)* "Objectives are known mutually, it is important. The partner's motives for collaboration are in line with the subcontractor's own motives. The demands of the end customers' must be known, otherwise it is a big risk for the shipyard." *(SC F)* "Working is not possible if the partner's objectives are not known. The lack of time often causes the absence of setting goals or developing the operations." *(SC G)* "Knowing the objectives of the partner is important. Often, the objectives of management, owners and personnel differ. The motives for collaboration are common: customer needs skilled workers and subcontractor provides them." *(SC H)*

APPENDIX 5 Evidence of the significance of relations from the shipyard viewpoint

The significance of relationships/relational skills	Evidence from the case project network (shipyards)
Exploiting the relations and relational skills	"Long-term relations enable the adoption of safety trainings. Recurrent relations are typical even though the contracts are always project specific." *(SY 1)* "Shipyard benefits from good relations with subcontractors because the shipyard is dependent on the subcontractors." *(SY 1)* "SY 2 is totally dependent on subcontractors and therefore it is unconditionally important to have working relations on every level of the collaborating companies: between sales and procurement, production, quality and after-sales." *(SY 2)* "The oil rig can not be finished without the subcontractors! Shipyard is dependent on subcontractors and needs new suppliers." *(SY 1)* "Mutual trust means that shipyard knows what each subcontractor is able to supply and subcontractors know that shipyard gets projects. Shipyard is also known as a reliable payer." *(SY 1)* "Contents and common goals are defined in the contracts." *(SY 1)* "Credit reports are always checked. Personal acquaintance is important – there is always someone in the network who knows a person or a company." *(SY 2)* "Relational skills are exploited when choosing the subcontractors: who has the required know-how and is able to deliver, what is the work load, how did the subcontractor get along in previous collaboration with the shipyard and what is the level of work safety." *(SY 1)* "Relational skills are important: knowing the other party means that, for example, probing information is observed and "incorrect" offers are directed to be calculated again." *(SY 2)* "Feedback is given after each project and the performance is evaluated." *(SY 2)* "Work safety means continuous development for both the shipyard and the subcontractors and could be challenging for new suppliers to adopt at a time." *(SY 1)* "Collaboration decreases uncertainty and increases risk sharing." *(SY 2)* "Collaboration (project meetings with each subcontractor, common preparation meetings) with subcontractors produces new implementation ideas, tips for modulation, open discussion concerning how things could be done differently aiming at shorter thorough-put times." *(SY 2)*

	"Recurrency of relations is extremely important. Work safety, quality issues and reliability of delivery employ especially with the new suppliers. Recurrency also decreases uncertainty, increases mutual understanding, decreases conflicts and "improves night's sleep"." *(SY 1)* "Recurrency does not straight affect the costs, business cycle's and economy's impact on costs is the most significant." *(SY 1)* "Recurrency in TK-relations has been successful: risk for shipyard has become lower compared to results." *(SY 2)* "Recurrent relations affect the amount of conflicts: fewer contradictions in the endgame, shorter fix lists, less items in the finishing meetings." *(SY 2)* "Repeating collaboration improves quality: information is shared, qualitative learning occurs, deflections are reacted more quickly, feedback in directed into right destination." (SY 2) "Sub-contracting relations are kept up all the time. Contacts are made and circumstances are informed, subcontractors are not abandoned. Subcontractors' production capacity is asked and safety walks are arranged for subcontractors." *(SY 1)* "There are a lot of contacts during the tendering process, face-to-face negotiations, audit visits, trade fairs and other occasions. The current situation, as well as the future requirements, is discussed together with the main actors. Relations are also maintained between the projects." *(SY 2)* "One person in procurement deals with TK-relations and one person in quality assurance and planning department specifies the subcontractors and entireties to be procured." (SY 2) "Subcontractor relations are inter-organizationally handled in procurement and technical department." *(SY 2)* "SY 1 has no bad relations with subcontractors. There are no disputes. Decisions are always justified – SY1 does not benefit from subcontractor's bankruptcy." *(SY 1)* "SY 2's relations with subcontractors are good (7 or 8 in scale 4-10)." *(SY 2)* "Subcontractors are not classified. The know-how of each subcontractor is based on tacit knowledge. There are no poor subcontractors as the qualification happens already in the prequalification questionnaire phase." *(SY 1)* "Subcontractor classes are formed, not knowingly made. There are equipping contractors, special structure manufacturers, transport support suppliers, conduit and electrification contractors. The focal classification criteria for SY 1 are safety, quality and reliability of delivery." *(SY 1)* "SY 2 has ABC products and ABC subcontractors. Supplies in category A are those with significant economic impact, i.e. big device deliveries and TK-deliveries. In category B are items and suppliers based on delivery time." *(SY 2)*
Relationships/relational skills as sources of competitiveness	"Choosing subcontractors are based on work safety, reliability in delivery and quality – sources of competitiveness for the shipyard." *(SY1)* "HSE (health, safety and environment) is the most important source of competitiveness for the shipyard. Good HSE rates have enabled many

	contracts. Other sources of competitiveness are reliability in delivery and quality. Failing in schedules is costly and might postpone the delivery for 2 years. Also quality and trustworthiness are significant: end customer must be able to trust on the quality." *(SY 1)* "Trustworthy and well-working supply chain (skillful and capable supply chain) is an essential source of competitiveness." (SY 1) "Network success rests on the way projects are executed. Keeping up with the schedule and quality are crucial." *(SY 2)* "Competitiveness is based on suitable and right resourcing. The ones concerned need to have sufficient knowledge – merely communication is not enough: instead, genuine information is needed. Right people in right places." *(SY 2)* "Ability to fulfill customer needs brings competitiveness." *(SY 2)* "Good relations lower the threshold to give feedback. However, if relations are too good, giving feedback is difficult." *(SY 2)*
Exploiting the relations in the future	"Subcontractors should be visited and reviewed to find out the future subcontracts. Subcontractors could be invited into a common occasion for sharing information and to discuss. There should be continuous common activities." *(SY 1)* "Also the feedback from lessons learned –occasions should be utilized more." *(SY 1)* "Subcontractors should be involved earlier into the project. Partnerships could be one possibility to increase the extent of value added." *(SY 1)* "Idea of partnerships has been introduced - the network was not ready yet. Raising competitiveness requires opening and knowing the costs." *(SY 2)* "Subcontractors could be engaged for a couple of projects instead of one. For example in case of rented staff long-term contracts might be reasonable." *(SY 1)* ""Crab" actors (actors with inadequate social skills) would be potential if negotiations and communication during the project would function better."*(SY 2)*

Tampereen teknillinen yliopisto
PL 527
33101 Tampere

Tampere University of Technology
P.O.B. 527
FI-33101 Tampere, Finland

ISBN 978-952-15-3168-2
ISSN 1459-2045